110



ALAGAPPA UNIVERSITY

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KARAIKUDI-630 003, TAMILNADU



DIRECTORATE OF DISTANCE EDUCATION

(Recognized by Distance Education Council (DEC), New Delhi)

MBA (System Management)



Paper - 4.1

MANAGEMENT CONTROL SYSTEMS

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M.B.A.
(System Management)



PAPER - 4.1

MANAGEMENT CONTROL SYSTEM

MANAGEMENT CONTROL SYSTEMS

Unit - 1

Nature of Management Control - Control in organizations - Phases of management control system - Management control vs task control.

Unit - 2

Control and Organizational Behavior - Types of organizations and their implications -Types of organizations and their implications - Types of control and variations in controls based on organizational structure and design.

Unit - 3

Goals and Strategies - Key variables in management control design and their types - Key result areas.

Unit - 4

Management Control Structure - Expense control - Profit centers Transfer pricing -Investment centers - Management control process Programming and budgeting -Analyzing reporting - Performance evaluation.

Unit - 5

M.I.S. for Management Control - Systems theory and management control - Installation of management information and control system Structured and unstructured decision - Implication for control.

Unit - 6

Special Management Control Situations - Multinational companies Service organizations -Non-profit organizations - Multi-project organization.

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Unit - 1

Nature of Management Control - Control in Organizations - Phases of management control system - Management control vs. task control.

Nature and Scope of Management Control

Every Organization exists to achieve certain objectives. It as limited sources at its command and operates quite often in a dynamic environment In order to achieve its objectives; the managers/administrators of the organization prepare and execute plans. After the plans are put into action there can be several hurdles in the achievement of objectives. Plans are themselves may not be effective, Organization structure may be defective, staff may be incompetent, motivated, direction may be faulty or the changes in the environment may disturb the operations. As a result performance may fail short of targets or expectations. Managers, therefore, require a system by which they can regularly monitor progress, identify the bottlenecks and take timely actions to set right. This is the function of control.

MEANING OF MANAGEMENT CONTROL

Control is the System of ensuring that the actual state of affairs is in line in the desired state of affairs. It is the process of ensuring that activities and plans are producing the desired results. Accordingly to *Anthony* et.al." Management control is the process by which managers assure that resources obtained and used effectively and efficiently in the accomplishment of the organization's objectives.''

This definition highlights three main points about management control. *First*, management control is a Process consisting of some inter-related and sequential steps. Secondly, management control aims at effectiveness and efficiency in the acquisition and utilization of resources such as money, materials, machinery and manpower. Thirdly, management control is designed to further the objectives of the organization.

Anthony's definition appears to be comprehensive though loose or general in nature. It does not specify that management control is a continuous process of measuring actual results with the desired results and of minimizing the gap between the two. It involves guiding and regulating operations towards some pre-determined targets.

In the words of Koontz and O'Donnell, ''Managerial control implies the measurement of accomplishments against the standards and the correction of deviations to assure attainment of objectives according to plans''.

This definition focuses on the measurement of performance and corrective actions for ensuring that planned targets are achieved. However, the ongoing nature of control is not explicit in the definition. Moreover, corrective actions are not confined to adjustment of operations alone. Plans themselves might have to be revised.

Mills has defined management control as "the handling of people-employees within the administration, and clients, suppliers, government officials, bankers outside it-to get decisions made and carried out in ways that will achieve the firm's, objectives.

This definition appears to be too wide and treats management control as the total· Management process. Management control is an important function. But it is by no means the Whole of management. For example, management control does not include selection of personnel and building up of an organization. Tannenbaum has defined control as '' any process in which a person or a group of persons or organization of persons determined, that is, intentionally affects the behavior of another person, group or organization This concept of control equates control with influence and, therefore, this definition fails to differentiate between control and leadership.

Management control may simply be defined as the continuous process of verifying whether actions are being taken as planned and ensuring that the desired objectives are being taken as planned and ensuring that the desired objectives are being efficient and effectively.

Management control is thus concerned with the maintenance, which is required to achieve the purposes of the organization.

NATURE AND SCOPE OF MANAGEMENT CONTROL

Management control is by nature both restrictive as well as regulative. Traditionally, management control is by nature both restrictive as well as regulative. Traditionally, management control has been associated with restricting people. Under the traditional view, control-enables us to compare targets with actual performance and to take corrective action where deviation occur. This view takes the targets as give and control system is designed to tell

us how near we are to the planned course. This view of control is essentially a restricted short range onetime, regulating the existing programme.

The modern view of control is that it is designed not only to tell us how near we are to our targets but to evaluate the targets themselves in relation to both the constraints in the external environment and the available resources. Environmental changes can make existing plans inappropriate and the main task of the top management is to ensure the plans are adjusted continuously to the changing environment. This is a more comprehensive and realistic view of Control. Under it control and planning are treated as interrelated rather than as independent functions. Its purpose is not only to regulate but also to improve results rather than restricting actions.

OVERVIEW OF MANAGEMENT

Management is that function of an industrial undertaking, which organizes, directs and controls various activities of the enterprise directed towards specific ends (objectives). The objectives of the enterprise are accomplished through the use of resources like men, money, material, machines, matters (information) and minutes. The management function of a concern is a major segment of co-ordination. Management entails the coordination of human effort and material resources toward the achievement of organizational objectives.

Harbison and.Myers* observe Management as

(a) An economic source, because the management resources of a firm determine to a large extent its productivity and profitability.

(b) A system of authority, because historically, first of all management developed Authoritarian Philosophy, and

(c) A Class and Status system, because entrance into the class of managers is based upon higher education and brain.

Management embraces all duties and functions that pertain to the initiation of an enterprise, its financing, the establishment, of all major policies, the provision of all necessary equipment, the outlining of the general form of organization under which the enterprise is to operate and the selection of the principal officers.

Principles of Management-CONTRIBUTORS

A principle of Management implies a list of current management practices. - Though F.W. Taylor developed principles of management; Credit goes to Henri Fayol, a French management theorist for advocating and publicizing certain principles (or laws) for the soundness and good working of the management. Henri Fayol warned that the principles of management should be, (i) Flexible and not absolute-must be usable regardless of changing conditions, (ii) Used with intelligence and with a sense of proportion, etc. Henri Fayol listed 14 principles, that grew out of his experience.

THE CONTROL FUNCTIONS

The Control Function: Planning sets forth the objectives a manager intends to pursue. Organizing provides the structure, people and responsibility, to attain those objectives. Directing provides the leadership, the motivating environment. Control provides knowledge of deviation from plans and correction for assurance of conformance to plans. Control is the determination or measurement of progress toward objectives in accordance with the established plans. It concerns the attainment of the planning, organizing, directing, and staffing objectives.

Control and Supervision : Some people confuse the term "control" with 'Supervision'. Control includes supervision to see that employees perform what they are supposed to perform and measurement of deviation from established standards of performance, as well as corrective action. Supervision to an extent minimizes the control function by reducing deviations from the established standards of performance.

Control as a Function

In order to see the managerial function of control in proper perspective, it must be regarded in the light of the other functions of the manager. Control is one of major functions of the manager at any level of an enterprise- whether president or -foreman-and in every organized enterprise- whether business, government, education, church, or other kind. These functions, all of which are necessary to the job of getting things done through people and all of which differ from those of the engineer, accountant, machinist, or personnel expert.

It will be readily seen that all of the functions of the manager are so closely interrelated that it is difficult in practice to ascertain where one function

ends and another begins. Indeed, in practice these functions tend to coalesce because the operating manager performs all of them virtually at the same time. Planning and control are particularly closely related since the purpose of control is to make sure that plans are accomplished. Any attempt to control without planning would be meaningless since no one can tell whether his subordinates are doing what he wishes them to do unless he first knows what his wishes are. As *Goetz* has put it, "Managerial planning seeks consistent, integrated and articulated programs". While "Management control seeks to compel events to conform to plans". Plans thus furnish the criteria for control.

Definition of Control

Controlling is seeing that actual performance is guided towards expected performance. It is an important function of management and is related to all other management functions. All other management functions cannot be completed effectively without performance of the control function. Control is a comparison and verification process and with the help of this process, a balance in the organization activities directed towards predetermined goals can be achieved and maintained. It helps in taking corrective measure in case of deviation from planned course of action.

According to *Ernest Dale,* "The modem concept of control envisages a system that not only provides a historical record of what has happened to the business as a whole but pinpoints the reasons why it has happened and provides data that enable the chief executive or the departmentai head to take corrective steps if he finds he is on the wrong track". Koontz and O'Donnell have defined controlling as the measurement and correction of the performance of activities of subordinates in order to make sure that enterprise objectives and the plans devised to attain them are being accomplished. Thus, managerial function of control implies measurement of actual performance, comparing it with the standards set by plans and correction of deviations to assure attainment of objectives according to plans.

According to *Henri Fayol,* the father of modern operational management theory, "control consists in verifying whether everything occurs in conformity with the plans adopted, the instructions issued and principles established. It has for an object to point out weaknesses and errors in order to rectify them and prevent recurrence. It operates on everything, things, people and their actions". Once a plan becomes operational, control is necessary to measure the progress,

to uncover deviation from plans and to indicate and implement corrective action. The corrective action may involve even revision of plan, restructuring the organization, improving staffing and introducing changes in techniques of directing and leading. Thus, the function of control is to compel events to conform to plans.

George IL Terry: "Controlling is determining what is being accomplished, that is, evaluating the performance and, if necessary, applying corrective measures so that the performance takes place according to plans".

The Systems Definition: "That function of a system which provides direction in conformance to the plan" or "The maintenance of variations from system objectives within allowable limits".

Thus, controlling implies determining and stating specifically what is to be accomplished, then checking performance against such standards prescribed with a view to supplying the corrective action required to achieve the planned objectives. The end objective of controlling is, therefore, to ensure that the people's effort in the organization is continuously directed towards the attainment of the predetermined objectives. Thus, whilst managerial planning seeks to provide consistent, integrated and articulated programmes, management control seeks to compel events to conform to plans. Although the manager cannot affect what has already happened or gone past he can study the past with a view to learn from it what has happened and where standards were not reached or achieved. He can then formulate the steps required to correct the action so that in the future and expected results are achieved. Thus, control is forward looking and is aimed at ascertaining the deviations from the established goals as quickly as possible with a view to incorporating corrective action.

To sum up, the meaning and purpose of 'Control' is:

1. Knowing exactly what work is to be done as to (a) quantity; (b) quality-, and (c) time available.

2. Knowing what resources are available for doing the work as to (a) personnel; (b) materials; and (c) other facilities.

3. Knowing that the work has been done or is being done (a) with the resources available; (b) within the time available; (c) at a reasonable cost; and (d) in accordance with the required standard of quality.

4. Knowing immediately of any delays, hold-ups or variations as to (a) what happened; (b) its cause; and (c) remedy.

5. Knowing what is being done; remove such hindrances as to (a) who is doing it; (b) how it is being done; (c) what it is costing; and (d) when it will be completed.

6. Knowing about the completed work as to (a) time finished, (b) quantity, and (c) final cost.

7. Knowing that resources are guarded against (a) in what way, (b) by whom, (c) at what cost, and (d) with what provision for periodic inspection.

Elements of Control: According to Drucker, peter F, There are six elements of control, viz., authority, knowledge, guidance, direction, constraint and restraint. To be in a position to exercise control, the Manager must know what the situation is, what it should be, and how to correct, it. Besides, he must have the authority to take the appropriate action.

Nature of Control: Managerial control has the following characteristics;

(i) Control is a function of management: It is, in fact, a follow-up action to the other functions of management. All the managers in the organization to control the activities assigned to them perform this function.

(ii) Control is a dynamic process: It involves continuous review of standards of performance and results in corrective action, which may lead to changes in other functions of management.

(iii) Control is a continuous activity: It does not stop anywhere. According to Koontz and O'Donnell, "Just as the navigator continually takes reading to ascertain whether he is relative to a planned action, so should be the business manager continually take reading to assure himself that his enterprise or department is on course".

(iv) Control is forward looking: It is related to future, as past cannot be controlled. It is usually preventive as the presence of control systems leads to minimize wastages, losses, and deviations from standards. It should be noted that control does not curtail the rights of the individuals. It simply keeps a check on the performance of individuals.

(v) Planning and Controlling are closely related with each other: Managerial planning seeks consistent, integrated and articulated programme while

managerial control seeks to compel events to conform to plans. As a matter of fact, planning is based on control and control is based on planning. The process of control uses certain standards for measuring performance, which are laid down by planning. The control process, in turn, may reveal the deficiency of planning and may lead to the revision of planning. It may also lead to setting of new goals, changing the organizational structure, improving staffing and making major changes in the techniques of directing.

'Control' by nature is both restrictive as well as regulative. However, the modern concept of control is concerned more with regulation than with restriction as the latter is a very limited form of control activity. The authority to control vests with the higher level of management because it is the superior who has delegated authority to the subordinate to carry out certain activity. Each higher level of management seeks to ensure that those over whom they have authority adhere to plans. Control operates against people, but control is not necessarily restrictive in the sense of one man controlling another. Controls are a method of measuring progress and the present direction of management thinking is towards the desirability of self-discipline in this respect. *Peter Drucker* advocates 'Self control' rather than control from higher level. The term 'self control' refers to a system of control wherein each level of management ensures for itself that it follows the planned course and attains the targets assigned to it. The self-control thus is more a self-regulatory process rather than imposition from the top.

Significance of Control

The significance of control emerges from the need to maximize the use of scarce resources and also to attain an orderly, systematic and purposeful behavior of an organization and its members. The need for control arises further from weaknesses, which are inherent in the psychological make-up of individuals. In the absence of control, an individual tends to allow results to deviate from plans or orders. Besides this, employees by nature are generally exposed to various temptations. In the ordinary course of business, many employees have to be entrusted with large amounts of money, valuable materials and trade secrets. In the absence of effective control, employees tend to yield to temptations. Control, therefore, becomes essential to impart strength and to boost morale of an organization, which ultimately affects its output. In a

nutshell, absence of, or laxity in, controls results in total confusion, inefficiency and conflicts.

"Control consists in verifying whether everything pictures in conformity with the plans adopted, the instructions issued and principles established. It has for object to point out weaknesses and errors in order to rectify them and prevent recurrence. It operates on everything, things, people, action". Control is an important function of management. Without control, a manager cannot "do a complete job of managing". All other functions are the preparatory steps for getting the work done and controlling is concerned with making sure that there is proper execution of these functions. Control is necessary whenever a manager assigns duties and delegates authority to a subordinate. He must exercise control over the actions of his subordinates so that he can ensure that the delegated authority is being used properly.

Scope of Control

The scope of control is very wide. It virtually covers all the areas of business, namely, policies, procedures, men, money, machines and equipment, public relations, human relations, research and development and so on. Generally, control is exercised by concentration on key areas of business on which the success of the business depends. it is known as 'Key-point Control'. The key points vary from enterprise to enterprise.

Control may (i) physical and (ii) financial, Physical control may be either quantitative-or qualitative. They are exercised by personal supervision and checking. Either the entire lot or the sample is compared with the. Standards. Financial control is exercised through budgetary control and cost accounting control.

Standards of Performance

A standard is a criterion against which performance and results of the individuals is measured or judged, Standard should be based on scientific analysis and should not be subjective in nature. It should possess the following characteristics:

1. Standard should be capable of achievement with reasonable amount of effort and time.

2. Standards should concentrate at results and not the procedures.

3. Standards should not be rigid. They should be capable of being changed whenever the need arises.

4. As far as possible standard should be expressed in quantitative terms and should be based on the result of work measurement carried with the help of time and motion studies.

5. Standards should be consistent with the overall organization objectives.

Standards may be expressed in physical terms or monetary terms. Physical standards are generally, applied at the operative levels where the quantity and quality of production is to be controlled. Monetary standards are expressed in terms of costs and revenues.

Thus, there are many types of standards, which can be fixed for measuring performance, which include the following important ones, namely: 1.Physical standards, 2.Cost standards, 3.Revenue standards, 4.Capital standards, and 5. Intangible standards.

1. Physical Standards; These physical standards, like quantitative in units and man-hours, deal with non-monetary measurements and are used more often at the operating level where materials are utilized, labor employed and goods manufactured. These can be quantitative or qualitative in nature. Quantitative standards may, for example, define the number of units to be produced per hour, or the man-hours per unit of output or the toned-miles of weight traffic carried or units of production per machine-hour and so on. Physical standards can also measure quality such as closeness of tolerances, fastness of a color, the durability of a product and so on. These physical standards are "the building blocks of managerial planning", and simultaneously they constitute the physical standards for control.

2. Cost Standards. These monetary measurements are also common at the operating level and give some monetary value to the cost of the operations involved, e.g., direct or indirect cost per unit produced, material cost per unit and selling cost per rupee or unit of sales. Thus, these cost standards state the expense involved in monetary terms for attaining the various goals.

3. Revenue Standards: These standards attach a monetary value to the sales, e.g., per capita in defined market area. Again, the annual sales for a department store can be stated in rupees by multiplying the forecasted number of units by

the selling price per unit and can become the expected revenue volume of the enterprise for a defined period.

4. Capital Standards: These standards are in terms of the capital invested by the organization and are' thus related to the balance sheet, e.g., rate of return on capital invested and several ratios such as the ratio of current assets to current liabilities.

5. Intangible Standards: These standards are expressed in neither physical nor monetary measurements and yet they exist in an organization. They relate to the measurement of intangibles such as the competence of managers and employees or the success of a public relations programme or the benefits of a training programme. Psychologists and behavioral scientists are continuously developing psychological tests and attitude surveys as an aid measuring such intangibles. However, it is difficult to set quantitative standards to these highly qualitative factors.

The standards may be tangible or intangible. It is relatively easy to measure performance against tangible standards as compared with intangible standards. The tangible standards are mostly physical, cost, revenue or capital standards. It is impractical if not impossible for a manager to attempt to check the performance of the various activities under his supervision against all these numerous goals. The manager, therefore, must select certain points in the operation which will be the strategic points to reflect the goals of his department and to show him whether or not these goals are being met. Through this technique a manager will be in a position to concentrate his energies on controlling operations.

Further, the strategic points should be such as will (i) facilitates timely control, (ii) permit economic observation and (iii) provide comprehensive coverage and promote balanced control.

CHARACTERISTICS OF MANAGEMENT CONTROL

The main characteristics of management control are as follows;

(i) Continuous Process; Management control is an ongoing process. It is dynamic not static. Just as the navigator continually takes reading to the ascertain whether he is relative to a planned course, so should the business manager continually take reading to assure himself that his enterprise or department is on course. The control process is a set of actions such as

programming, budgeting, analyzing, monitoring, evaluating and reporting the performance. Management control process is carried on within the framework established by strategic planning. This framework consists of objectives, strategies, policies, facilities, etc., of the organization.

(ii) Goal Congruence; The purpose of management control is to encourage managers_to take actions that are in the best interests of the company.

Technically, this purpose can be described as goal congruence, which means harmony between individual goals and corporate goals. Due to, several reasons, prefect goal Congruence cannot be -achieved in actual practice. The aim should, therefore, be to attain a minimum amount of conflict between various goals. For instance, if the control system reports the performance of an individual, goal, even though it is detrimental to the best interests of the company, the control system is defective.

(iii) Universality. Control function is required at every level of management and in every part of the organization. The-basic control process is the same irrespective of the function to be controlled. Every manager is responsible for monitoring the activities of his subordinates and to keep the operations focused towards goal achievement. I

(iv) Total System. Generally, a management control system is a total system in the sense that it covers all aspects of the organization's operation. In order to maintain balance between all parts of the organization, management requires information about every part. Control system is sets of inter locking sub-systems, e.g., standard or goal, sensory device to monitor events, mechanisms to detect and analyze deviations (warning signal) and the corrective element. Management control system should be an integrated or coordinated system. Although data collected for one purpose may differ from those collected for another purpose, these data should be reconcilable with one another.

(v) Coordinating Agency. Management Control is exercised by a central Coordinating agency. In the private sector this agency is the top management. Government decision-makers are the coordinating agency in the public sector. Line managers are the focal points in management control. Their judgments are incorporated in the plans and their performance is measured. Staff people help them by collecting, summarizing and presenting useful Inf6mation. Staff experts translate management judgments into the format of the, control system through

their calculations. The control department is often the largest staff department in a company but it is the line managers who make the significant decisions.

(vi) Goal Orientation. Management control is intended to assist in the attainment of organizational-goals. Its purposes maintain effectiveness and efficiency of performance. Effectiveness implies the ratio of actual output to the target output, whereas efficiency is the amount of output per unit of input. The focus of management control is on controlling the performance of individuals rather than the organization as a whole,

(vii) Financial Structure. Except in rare cases, management control system is built around a financial structure. In other words, inputs and outputs are expressed in monetary units. This is because money is the only common Denominator by means of which the heterogeneous elements of Inputs. And inputs (e.g., labor hours, raw materials, machine hours, quantity and quality of products) can be combined and compared. Although the central focus is on financial structure, non-monetary measures such as time, number of persons, rates of spoilage, etc. are also important parts of the management control system.

(viii) Rhythmic. The management control system follows a definite pattern and timetable, month after month and year after year. For example, in Budgetary control, certain steps (e.g., dissemination of guidelines, preparation of original estimates, communication of these estimates, review of the estimates, final approval, operation, reporting and approval of performance) are taken in a prescribed sequence and at certain dates each year. The procedure to be followed at each step in the control process, the dates by which each step is to be completed and even the forms to be used are often set forth in the budget manual.

Dalton and. Lawrence mention two other features of control in organizations, which are as follows:

(ix) Reciprocity. Every living creature tries to control its environment as a means of fulfilling its needs. Someone in turn must control him. If either refuses to be controlled' by the other, he loses the Control he has. It is the reciprocal nature of the exchange that makes control effective.

(x) Expansibility. Control in organizations is a variable rather than a constant element because it can expand or contract. The influence of an individual in the

organization changes from time to time. Similarly, an organization's influence in the environment fluctuates.

MANAGEMENT CONTROL AND STRATEGIC PLANNING

The nature of management control can be further explained by differentiating it from strategic planning and operational control. "Strategic planning is the process of deciding on the objectives of the organization, on Changes in these objectives, on the resources used to attain these objectives, and on the policies that are to govern the acquisition use, and disposition of these resources." Strategy explains how the resources are to be combined and employed. Strategic planning is concerned with the formulation of long-range'. Strategic and policy type plans that determine and change the character or direction of the organization. The markets to be served, the organization structure to be adopted, the sources of capital to be exploited are a few examples of strategic planning decisions. These decisions determine the physical, financial and orgartisational framework within which operations are carried on.

According to *Lorange* strategic planning and control are the process by which managers ensure the firm's long-range adaptation to its environment, and is concerned with setting basic strategic directions with the context of the environment strategic control is the process by which managers verify and evaluate the correctness of the assumptions underlying their strategic plans.

Strategic planning differs from management control in the following ways.

1. Focus. A strategic plan usually relates to some part of the organization. Its focus is on a single aspect of the company at a time. On the other hand, management control focuses on the total organization.

2. Regularity. "Strategic planning is essentially irregular. Problems, opportunities and ideas do not arise according to some set time- table and they have to be dealt with *whenever they* happen to toe perceived... In strategic planning management works now on one problem, now on another, according to the needs and Opportunities of the moment. Management control, on the other hand, is a predominantly regular and rhythmic process,

3. Nature of Results. The estimates used in strategic planning are, intended to show the expected results of the plan. They are neutral and impersonal. By contrast the management control process and the data used in it are intended to influence managers to take actions that will lead to *desired* results.

4.Type of Decisions. Strategic planning is concerned mainly with unstructured or un programmed decisions. On the contrary, the decisions involved in management control are primarily structured or programmed decisions.

5. Nature of Information. Strategic planning depends largely on external information, i.e., on data collected from outside the organization such as market analyses, technological developments etc. When internal data, e.g., costs are used they must be tailor-made to fit the problem. Such information is futuristic and less accurate. On the other hand, management control requires predominantly internal, historical and accurate information.

6. Time Frame. Strategic planning involves estimates over a rather long-time. Period exceeding one-year Management control, on the other hand, is concerned with yearly or quarterly time periods. Therefore, the degree of uncertainty involved in strategic planning is higher than that involved in management control.

7. Nature of Activity. Strategic planning is an analytical and creative activity whereas management control is primarily an administrative and persuasive activity.

8. Techniques Used. Strategic planning relies heavily on techniques like SWOT (strengths, weaknesses, opportunities and threats) analysis whereas management control depends more on budgeting technique.

9. Communication. In the management control process, the communication of objectives, policies, guidelines, decisions and resulted through out of the organization is extremely important On the other hand, in strategic planning communication in is much simpler and involves relatively few persons. Indeed, the need for secrecy often requires that steps -be taken to inhibit communication. "Strategic Planning is essentially applied economics, whereas management control is essentially applied social psychology.

10. Difficulty of Appraisal. The appraisal of a strategic plan is extremely difficult due to lack of clear-out criteria. By contrast, the evaluation of management control is relatively easy.

11. Management Level. Both strategic planning and management control involve top management. But operating management, typically has a much more important role in -management control than in strategic planning The pressures of current activities usually do not Allow middle managers to devote much time

to strategic planning. Many operating executives are by temperament not very good at strategic planning

MANAGEMENT CONTROL AND OPERATIONAL CONTROL

Operational control or task control is the process of assuring that specific tasks are carried out effectively and efficiently. The focus of operational control is on individual tasks or operations. For instance, it is concerned with scheduling and controlling individual jobs through a shop rather than with measuring the performance of the shop as a whole. It involves control over individual items for inventory rather than the management of inventory as a whole.

Operational control is concerned with activities that can, be programmed For instance, if the demand for an item, the cost of storing it, its production cost and production time, and the loss involved in not filling an order are known, then the optimum inventory level and the optimum procurement schedule can be prepared. Automated plants (cement factories, oil refineries, power generating stations, etc.), production scheduling, inventory control, order processing, payroll accounting, cheque handling, etc4 are examples of activities that are susceptible to operational control. As new techniques are developed, more and more activities may become susceptible to operational control. For example, the production schedule that was formerly set according to the foreman's intuition is now derived through linear programming.

The following points of distinction between management control and operational control can be identified

(i) Focus. Management control concerns the whole of an organization or division. Its focus is on all the operations of an organization or unit. On the other hand, the focus of operational control is limited to a single task or operation. "Just as management control occurs within a set of policies derived from strategic planning, so operational control occurs within a set of well defined procedures and rules derived from management control.

(ii). Nature. An operational control system is a rational system because the action to be taken is decided by a set of logical rules. Rules govern the control system and judgment is involved in exceptional cases. On the contrary, in management control psychological considerations are dominant. There are very little rules and a high degree of judgment or subjective decision making are involved.

(iii) Time Horizon. Management control involves weekly, monthly or yearly time frames-whereas the time horizon of operational control tends to be day-to-day.

(iv) Degree of Difficulty. Control is more difficult in management control than in operational control due to the lack of a scientific standard with which actual performance can be compared. A good operational control system can provide a much higher degree of assurance that actions are proceeding as desired than can a management control system.

(v) Type of Data Used. A management control system is usually built around financial data whereas operational control dam are often non monetary, e.g., man-hours, number of items, etc Information required for operational control is often tailor-made to the particular operation. Since each operational control procedure is designed for a limited area of application, it is feasible to use the basis of measurement that is most appropriate for that area. Data in an operational control system are often in real time, i.e., they are, reported as the event is occurring, and relate to all individual events. On the contrary, data in a management control system are often retrospective and summarize many separate events. Similarly, operational control uses exact data whereas management control needs only approximations.

(v) Analogies. In operational control systems, analogies within technical, electrical and hydraulic systems are reasonable and useful. Therefore, terms like feedback, network balancing, optimization, etc., are relevant. For example, an operational control system can be considered as analogous to a thermostat, which turns the refrigerator and on according to its perception of changes in temperature. These analogies do not work well with management control system because the success of a management, control system is Highly dependent on its impact on people who are not like thermostats.

(vii) Techniques. Operations Research (OR) techniques are widely applied in operational control bemuse the activities are programmable. But management control system depends on management information system (MIS) and decision support system (DSS) as its activities are not programmable.

(viii) Role of System. In management control, the system is a relatively insignificant part of the control process. The success or failure of the management control process depends on the judgment, knowledge and other personal characteristics of the manager. In operational control, on the other hand,

the system itself is relatively more important because the degree of involvement of the managers small.

(ix) Guide. The designer of an operational control system can draw on knowledge from mathematical and physical sciences to arrive at models and decision rules. On the other hand, the, designer of a management control system has no comparable body of knowledge to guide him.

OBJECTIVES OF MANAGEMENT CONTROL

A sound control system is needed for the following purposes;

To measure progress. Under the planning process, the fundamental goals and objectives of the organization are established. The control process is necessary to measure progress towards these goals. According to Fayol, "Control consists in verifying whether everything occurs in conformity with the plan adopted, the instructions issued and the principles established." As the navigator continually takes readings to ascertain whether he is relative to a planned course, so should the manager take readings to see whether his enterprise or department is oft the predetermined course? He needs a control system to take such readings. The feedback enables us to compare targets with performance and to take corrective action where deviations occur.

To uncover deviations. Several forces pull off the enterprise from its charted course. An efficient control system is required to detect these deviations before they become serious The main forces due to which an organization, may go astray are as follows:

(a) Change. Chan, go is an integral part of business environment. Markets shift, new products emerge, new materials are discovered and new government policies are introduced. The control system enables a manager to detect changes that are affecting his organization. He can then take action to face the threats and exploit the opportunities, which these changes create.

(b) Delegation. When a manager, delegates authority, his responsibility to his own superior is not reduced. A manager needs a control system to determine whether his subordinates are accomplishing the tasks delegated to them. In the absence of a control system, he will not be able to check on the subordinate's progress and corrective action cannot be taken until after failures occurred.

(c) ***Mistakes.*** Employees very often commit mistakes. Problems may be diagnosed incorrectly, pricing decisions may be faulty, wrong parts may be ordered, etc. Managers require a control system to detect and rectify these mistakes before they become serious.

(d) Complexity. Large organizations are complex due to decentralized and geographically scattered, operations. For example, sales at different retail stores/branches need to be recorded and analyzed accurately. Close monitoring of diversified product lines is needed to ensure that quality and profitability are being maintained. Such monitoring is impossible without a control system.

3. To Indicate corrective action. Controls are required to suggest the remedial actions. A control system may, for example, reveal that goals should be modified, tasks should be reassigned, staff should be trained further, etc. A sound control system not only reveals deviations but suggests the corrective actions required to overcome the deficiencies.

To sum up, once a plan becomes operational, control is necessary to measure progress, to uncover deviations from plans, and to indicate corrective action.

Importance of Management Control

Control is an indispensable function of management. Without control function the management process is incomplete. In business organizations, the *need for control* arises due to several factors; *first* it is difficult to establish fully accurate standards of performance in large and complex organizations. An executive needs all kinds of timely information, which are not always available. Control is required to judge the accurate of standards. Secondly, there are several temptations in business. Employees are entrusted with large sums of money and valuable resources. In the absence of control employees may yield, to these temptations. An efficient control system helps to minimize dishonest behavior on the part of employees. *Thirdly,* in the absence of control employees may become lax in their efforts and their performance may be below normal. The signals at, a busy road crossing very well illustrates the significance of control. Just as road signals are essential to ensure accident- free and smooth traffic, managerial control is necessary to ensure smooth functioning of an organization. It is through control that managers ensure that the resources of an organization are obtained and utilized effectively for the attainment of desired objectives; a good control system offers the following benefits: *Guide to operations.* Control

guides behavior towards organizational goals. Lack of control results in erratic behavior that may be detrimental to the goals. Like a traffic signal control guides the organization and keeps it on the right tract It measures progress towards the goal and brings to light the adjustments, if any required in day-to-day operations. A sound control system is needed to measure progress, to uncover deviations and to, indicate, corrective actions. It encourages Managers to become more explicit about, objectives.*2. Policy verification.* Control enables management to verify the quality of various plans. It may reveal that, plans need to be redrawn or goals need to be modified. Changes in the environment may render the original plans non-workable or deficient. Control helps to review, revise and update the plans. Without watchful and feed- back of an, efficient control system even the best plans may not work out as expected. Management control not only reveals the need for corrective action, if also provides the information by which managers can judge whether their targets are still appropriate in the changed environment. *Managerial accountability.* When a manager assigns some activities and delegate's authority to his subordinates, he remains responsible for ultimate performance. Therefore, a manager should check up the performance of subordinates to ensure that they are utilizing the delegated authority in the desired manner. In this way control enables managers to discharge their responsibilities and at the same time delegate authority.

4. Employee morale. Control creates an atmosphere of order and discipline in the organization. Absence of control leads to a lowering of morale among employees because they cannot predict what will happen to them. They become the victims of the bias and repression of the superior.

5.Psychological pressure. The existence of a sound control system inspires employees to work hard and give better performance. When they know that their performance is being judged and their rewards are linked to such appraisal, they try to contribute their best efforts.

6. Efficiency and effectiveness. Control contributes to the efficiency of operations by focusing on goal accomplishment. Without control managers will not be able to check on subordinates progress towards the targets and take corrective Actions until after failure has occurred. A sound control system enables, managers to detect and correct mistakes before they become serious. the presence of control system helps to minimize wastage and loss. Control ensures

efficiency by monitoring the allocation and use of resources. It focuses attention on the key factor essential to the success or effectiveness of the organization.

7. *Co-ordination in action.* Control helps to maintain equilibrium between means and ends. According to George Terry, "Controlling helps ensure that actions proceed according to plans, that proper direction is taken, and that the various factors are maintained in their correct inter-relationships, so that adequate consideration is attained." Control provides unity of efforts. It enables managers to command the organization instead of being its victims.

PRINCIPLES OF MANAGE MENT CONTROL

The basic principles of management control can be grouped into three categories reflecting their purpose and nature, structure and process. These principles are given below

(i) Principle of Assurance of objective. The basic purpose of management control is the attainment of objectives does this by detecting failures, in plans. Potential or actual, deviations from plans should be detected enough to permit effective corrective action.

The control function of a management control System is to achieve organizational goals. The system-Should be designed in such a way that it assists and guides managers to make-decisions and to take actions that are consistent with the overall objectives of the organization

(ii) Principle of Efficiency of Controls. A management control system should detect and highlight the causes of deviations from plans with minimum possible costs and unwanted consequences. The principle of efficiency is particularly important in control because techniques tend to become costly and burdensome. A manager may become so engrossed in control that he spends more than it is to detect a deviation. Controls, which seriously interfere with authority of subordinates or morale of those who execute plans, thwart creativeness is inefficient. For example, there is no use of a purchase control that delay deliveries and costs more than the item purchased.

(iii) Principle of Control Responsibility. The primary responsibility for the exercise of control lies with the manager charged with the execution of plans. His responsibly cannot be waived or rescinded without changing the organization structure. This simple principle clarifies the often-misunderstood role of controllers and control units. These agencies act in a service or staff

capacity to provide control information. But they cannot exercise control unless given the managerial authority and responsibility for the things controlled.

(iv) Principle of forward looking; Control like planning should be forward looking. This principle is often disregarded largely because control has been; depend upon accounting and statistical data instead of upon forecasts and projections. Even though forecast are not percent accurate, they are better than historical records. Ideally, a control system should provide instantaneous feedback so that, deviations from desired performance is corrected as soon as they occur. If this is not possible control should be based on forecasts so as to foresee deviations in time. For example, cash forecasts help in maintaining the solvency of business by anticipating cash shortages and preventing them Programme, evaluation and review techniques (PERT) also help in making controls forward looking.

(v) Principle of Direct Control; Most, controls used today are based on the fact that human being make mistakes. They are often used as indirect controls aimed at catching errors, often after the fact. Where ever is possible, direct controls aimed at preventing, errors should be used. Improving the quality of managers can minimize the need for indirect controls. High quality managers make very few mistakes and carry out all their functions to the best advantage.

(vi) Principle of Reflection of Plans; Controlling is the task of making sure that plans are carried out effectively. Therefore, control techniques must reflect the specific nature and structure of plans. For example, cost control, must be based on planned costs of a definite and specific type.

(vii) Principle of Organizational Suitability; A management control system fit the manager's authority area and it should reflect the organization structure. When the control system is tailored to the structure of the organization it pin points the responsibility for action and facilitates correction of deviation from the plans. Similarly, the information to appraise performance against plans must be suitable to the position of the manager who is to use it. In other words, all figures and reports used for purposes of control must be in terms of the organization,

(viii) Principle of Individuality of Controls; controls become effective when they are consistent with the position, operational responsibility, competence, and needs of the individual concerned. The scope and detail information required vary with the level and function of management. Similarly, different managers

prefer different forms and units of reporting information. Therefore, controls should meet the individual requirements of each manager.

(x) Principle of critical point controls. While exercising control, a manager should focus attention on the factors, which are critical to appraising performance. It would be unnecessary and wasteful for a manager to check each and detail of performance. Therefore, he should concentrate his attention on significant aspects of performance. Critical points are those which show him whether the plans for which a manager to check.

(xi) Principle of Action; Control is a waste of time unless the corrective action is taken corrective action may involve redrawing plans, reorganization, replacement or training of a subordinate, motivation of staff, etc. Control is justified only when indicated or experienced, deviations from plans are corrected through appropriate, planning, organizing, staffing and directing.

Scope of Management Control

A management control system refers to the framework by which managers can. Ensure control over the actions of their subordinates as well as control over the organization as a whole. It is a total system in the sense that it embraces all aspects of the firm's operations so that the different parts of the organization are in balance with one another. According to Anthony, "A management control system is an explicit set of activities, policies, procedures and reports intended to institutionalize the, formal aspects of the management control process.

This definition reveals that the scope of management control system is not necessarily restricted to measuring, the performance of a subordinate manager toward the achievement of an objective established for, his function. Performance evaluation is only a part of management control. Control system

Should not be confused with a control method, which is merely one of the many elements of control system. Control implies that (a) there is some standard or standards, (b) performance is compared against, the standard on a continuous basis, and (c) corrective action is taken whenever there is a significant deviation from the limits defined by the standard. The management control process thus consists of the following elements:

(1) Setting Performance Standards. Targets of performance are laid down for the total organization, for each one of its divisions/departments/sections and for

each employee. Standards represent the yardsticks against which actual performance is to be evaluated. Standards reflect the desired or acceptable level of performance. Control standards may be of the following types:

(a) Quantitative Standards. These standards are laid down in physical of monetary units such as time, cost, revenue, etc. Such standards can be set in production, sales and finance areas wherein performance can be quantified.

(b) Qualitative Standards. There are certain areas where performance cannot be measured in quantitative terms. Goodwill, employee morale, motivation, industrial relations and in similar areas standards can be laid down in intangible terms.

Standards should be -accurate, precise, objective, reasonable, and flexible.

2- Reporting Operating Results. Measuring the results of actual operations is a formal part of the management control process. Actual results should be measured in the same terms in which the performance standards have been set. Operating results should be reported in time to the executives responsible for exercising control. Control, reports should be accurate and brief but complete. Control reports must be presented in such form that managers can get the bird's eye view. Control reports should also produce figures that are truly comparable from one period to another and from one section of the business to another.

3. Analyzing Performance. The actual results are compared with the standards established and the variances are analyzed to identify the reasons behind them. These analyses alert the managers that results are not meeting; expectations and the goals may not be, achieved. Variance analysis is a continuous activity and may trigger a recycling of other elements of the management control process. While analyzing and reporting variances, the principle of control by exception is useful.

4. Taking Corrective Action. The final element of management control process is to initiate the remedial action. Such action may involve revision of standards, changes in organization structure, and training of employees, improvement in motivation and communication systems, etc. At this stage, a manager should avoid two types of mistakes. *Firstly,* taking corrective action when no action is required, and *secondly,* not taking action when action is necessary. The real test of a good control system is right action at the right time.

TYPES OF MANAGEMENT CONTROL

There are three major types of control over behavior in organizations. Each has its own standards, its own monitoring system and its own system for corrective action when behavior does not meet standards. These three types of controls are, given below:

1. Organizational Controls. The organizational controls refer to the formal rules and standard operating procedures that are communicated throughout the organization. Such controls are concerned with the total organization and may, therefore, be called administrative controls. The direction for organizational controls comes from the plans and, purposes of the organization. In business organization this direction is often expressed in terms of market share, cost reduction, return on investment etc. These may be translated into specific performance measures such as sales quotas, standard costs and budgets. Rewards for meeting standards, vary from a word of praise to salary increase and promotion.

2. Social Controls. Social or group or informal controls are based on the principle of mutuality which implies checks and balances on each others activities as a result of the mutual commitment of group members to each other. Such controls have neither explicit written standards nor formal authority behind them. But these are very real and powerful form of control over behavior in organizations. The direction for these controls comes from the mutual commitments of members to each other and the shared ideals of the group. These ideals are group norms about sharing, helping, work performance, etc. The members naturally and widely accept them. Therefore, compliance with these controls is easier. Rewards for compliance include approval, membership and even informal leadership.

3. Self-control. Self-control or individual level control implies the control exercised by an individual on himself or herself with a view to achieve personal goals and aspirations~ Individuals become. Committed to certain objectives and often work tirelessly to accomplish them. The direction for such controls comes from individual goals and aspirations. The standards become expectations about one's performance. The rewards for compliance to these self-administered controls include satisfaction, elation and sense of self Mastery. The sanctions for non-compliance may range from disappointment to a deep sense of failure and inadequacy. The popular term used for self-control is motivation. If someone is

directing his energies towards certain accomplishments, we say he is highly motivated.

The three types of controls given above are interdependent and mutually reinforce each other. If one type of control is working at counter-purposes with another the results will be inefficient. For example, if the organization introduces an incentive bonus to promote high productivity but the group norms of output are set at a moderate level, each type of control will is less effective. On the other hand, if all -the three types of controls are working in the same direction the control system will be optimally effective. In fact, control is usually highest when it is least apparent.

These controls not only reinforce each other but also mutually determine each other. When an individual, who was regulating his own behavior towards a certain goal, is required by external controls to work toward that goal in a different Way, he feels new personal concern for meeting the total objective. His energies are diverted into coping with the organizational controls in an effort to regain control over his own activities.

Another classification of controls is as follows:

1. Steering Controls. These are used while operations are in progress to keep activities on the right course. Results are predicted and corrective actions are taken before the total operation is completed. The most common example of a steering control occurs when a person is driving a car. The driver makes decisions during driving to keep the car on course, at the proper speed and out of danger. Operational procedures are steering controls used by organizations to guide employees For instance; banks use procedures to guide tellers in daily transactions.

Steering controls are primarily feed forward controls designed to prevent mistakes. These controls provide mechanization for remedial action while the actual results are still being shaped. The great virtue of steering controls is that most people regard them as helpful rather than as pressure devices. If the good is accepted then the various feedbacks are treated as aids in achieving the desired results. Personal involvement adds to the positive response, which can be enhanced by translating steering controls into action as' close to the actual operations as possible. Steering controls stimulate a positive response only when the people on the giving and receiving ends of the control effort are steering in the same direction.

2. Yes-No Controls: Under such control, work is allowed to proceed to the next step only after screening at selected checkpoints in an operation. Corrective action required by this type of control is rather obvious: either 'go' or stop'. Therefore, this control is also called go/no control. These controls are used as fail-safe standards in initial operation and can be incorporated into steering procedures at specific points to modify operations. A common example of these controls is the pre flight checks in a commercial airline, which incorporate critical go-no-go options. If an oil gauge indicates low pressure or a radio fails, the pre-flight check will stop, and so will the flight.

Yes-no controls are essentially safety devices. The consequences of a faulty aircraft or spoiled food are so serious that extra precautions are required to ensure quality specifications. Avoidable expenses or poor allocation of resources can also be checked by these controls. For example, sales persons may be required to take approval of higher authorities before granting credit beyond 2 per cent on the list price. Similarly, safety inspections may shut down operations under certain conditions. Yes-no controls would be unnecessary if steering controls were fully effective. But steering controls may not be fully reliable or may be very expensive. So yes-no controls are applied. These controls usually leave little scope for doubt about what, action managers should, take. Yes-no controls often generate, neutral and negative reactions particularly, when standards are vague and unpredictable. Such reactions can be reduced by making clear that control is necessary for the attainment of objectives and by keeping the measurements objective and consistent.

3. Post-action Controls. In this type of control, the operation is first completed. The results are measured and compared with a standard. Deviations from standards are analyzed and corrective action is taken to avoid similar, mistakes in the future. Quality control and budgetary control are popular examples of this approach. Most post-action controls are devised as periodic reports. For example, banks use monthly loan activity summaries to evaluate patterns of risk in the number and types of loans processed. If the resulting risk profile is higher than a bank wants to maintain fewer high, risk loans are made in the coming months. Thus, post-action controls are like, score cards. In post action controls, the work is already completed before it is measured. However, such controls. Serve two purposes. *Firstly,* where rewards are based on actual performance, results must be Unmeasured to decide rewards. *Secondly,* such controls provide planning data for similar work in future. With improved methods of monitoring,

results can often be evaluated very rapidly. Some computer assisted quality controi systems monitor operations as won as they are completed. Consequently when post-action controls provide rapid feedback, they became very useful for enhancing steering controls. All the three types of controls may be needed to control a major activity. For example, most of the instruments in the cockpit of an airplane are steering controls, for monitoring flight operations. Pre-flight checks are yes-no, controls employed before a commercial flight. Post-action controls after the flight include pilot debriefing sessions, evaluation of information from in-flight recorders, and reports on schedules, costs, maintenance, and other elements of airline operations.

The type of control to be used depends on the following factors.

(a) Controls required ensuring desired performance,

(b) Critical points l or monitoring progress.

(c) Who is capable of measuring performance and making corrections?

(d) How critical is the operation to justify the cost of controls.

PROBLEMS IN THE CONTROL PROCESS

Magnitude of Change. Control system is designed to cope with changes of a limited magnitude. While designing the control system certain as assumptions are made concerning the variables expected to change and the degree of change. Corrective actions are decided on the basis of these assumptions. For example, overtime may be decided on the assumption that five per cent of the employees will on an average be absent. When the magnitude of change is too high, the corrective action cannot work. For example, if 90 per cent of the employees remain absent, on a particular day due to a bandit, management can do little to correct the change, Thus, the control system fails when the variables go outside the range, which the system was designed to handle.2. **Time Rate of Change.** Control system in any organization depends upon accurate and timely feedback' on actual performance. Such feedback largely comes through written reports. It takes time to write and transmit the control reports. When an activity is changing very fast, the feedback becomes outdated by the time reports reach the higher authorities. Such time lag in feedback slow downs the adaptive process. The control system takes greater time to respond.3.**Faulty Standards.** When the control standards are erroneous, it becomes difficult to discriminate between proper and improper performance be decision-maker is not certain whether the

deviation in performance is due to the activity being out of control or due to the improperly set standards. **4. Information Overload.** Too much information is as harmful for control as incomplete information When managers, at all levels receive identical information they may be overburdened and may suggest remedies before giving subordinates an opportunity to take action Therefore, management must decide the quantity and type of information that should reach every manager.**5. Resistance.** Employees often consider any control system as a tool to exert pressure on them. They complain that the targets, are non feasible, time Span of appraisal is too short to permit a fair assessment and control staff lacks objectivity. Employees may also resent the control department to sit in judgment. They may question the location of the decision level regarding corrective action. Therefore, a control system must first be 'sold' to the employees before it is installed.

STEPS IN THE CONTROL PROCESS

In order to perform his control functions, a manager follows three basic steps. First of all, he establishes the standards of performance to ensure that performance is in accordance with the plan. After this, the manager will appraise the performance and compare it with predetermined standards. This step will lead the manager to know whether the performance has come up to the expected standard or if there is any deviation. If the standards are not being met, the manager will take corrective actions, which is the final step in controlling.

(i) Establishing standards: A standard acts as a reference line or basic of comparison of actual performance. Standards should be set precisely and preferably in quantitative terms. It should be noted that setting standards is also closely linked with and is an integral part of the planning process. Different standards of performance are set up for various operations at the planning stage, which serve as the basis of any control system. Establishment of standards in terms of quantity, quality or time is necessary for effective control because it is essential to determine how the performance is going to be appraised. Standards should be accurate, precise, acceptable and workable. Standards should be flexible, i.e., capable of being changed when the circumstances require so.

Different types of standards are used for measuring the performance of different operations. Many standards are of a physical nature, such as number of units, man-hours, etc., and there are other standards, which are expressed, in monetary terms relating to sales, revenues, expenses, costs and so forth. In

addition to these standards, there are also standards of an intangible nature like reputation of the firm. Whenever standards are intangible, it is essential to lay down quantitative factors which win determine whether the standards are being met or not.

(ii) Appraising performance: This step involves measuring of actual performance of various individuals, groups or units and then comparing it with the standards, which have already been set up at the planning stage. The quantitative measurement should be done in cases where standards have been set in quantitative terms. In other cases, performance should be measured in terms of quantitative factors as in case of performance of industrial relations manager. Comparison of performance with standards is comparatively easier when the standards are expressed in quantitative terms.

The process of performance appraisal will reveal the deviations from the standards. The appraisal should try to analyze the various deviations and investigate into their causes. It is also important to establish a range of deviations beyond which the attention of top management is warranted. Only such cases should be reported up which pin-point exceptional situations. This is what is known as 'Management by Exception'.

(iii) Comparison: This is the core of the control process. This phase of control process involves checking to determine whether the actual performance meets the predetermined or planned performance. Manager must constantly seek to answer, "How well are we doing?" When a production supervisor checks the actual output or performance of his department with the production schedule, he is performing comparison aspect of control. When an executive evaluates the performance of his subordinates once in six months or annually, he is performing comparison aspect of control. Checking return on investment is a comparison phase of control.

(iv) Taking corrective action: The final step in the control process is taking corrective actions so that deviations may not occur again and the objectives of the organization are achieved. This will involve taking certain decision by the management like re-planning or redrawing of goals or standards, reassignment or clarification of duties. It may also necessitate reforming the process of selection the training of workers. Thus, control function may require change in all other managerial functions. If the standards are found to be defective, they will be modified in the light of the observations.

Some innovative people and organizations have already built-in corrective actions in their control process, if the deviations are due to controllable factors. Some even go to the extent of identifying the uncontrollable factors and developing alternative courses of action for deviations. When deviations occur and the procedures regarding corrective actions are given in advance to the performers of job, actions can be taken without delay. The following are important phases of corrective action:

1. The Operative Phase:

(a) Prompt investigation of the causes of the deviation.

(b) Decision concerning the required corrective action.

(c) Prompt direction for correcting the situation in accordance with the decision.

(d) Close supervision of the corrective action to ensure that it is taking place according to the instructions and is effective.

2. The Administrative Phase:

(a) Further investigation of recurring difficulties to determine the basic factors, either human or physical, that is responsible.

(b) Disciplinary action, either positive or negative, as the situation requires.

(c) Creative planning to prevent a recurrence of the situation.

(d) Recognition of the situation and the introduction of the planned measures.

Follow-Through: Recommending corrective actions also is not sufficient and the manager shouldn't assume that his responsibility is over with this action. Often control process is ineffective or fails because the corrective action recommended is not followed through. Specific procedures must be established and the responsibility must be clearly assigned to car ry out the corrective action. Say, for instance, the performance evaluation of a subordinate indicates weaknesses in supervisory practices; the superior of this individual recommends a corrective action by which the individual is to undergo some training in supervisory practices. The responsibility for that corrective action is not over just by making this recommendation. The superior must follow through his recommendation to see whether the individual participates and makes progress in the training programme and to what extent he relates to his actual work situation whatever he has learned in the training programme,

Feedback in Control: We have noted in the control process that performance is measured and reported back to the manager. Performance information thus measured and channeled back to management is known as Feedback. It tells what kind of job is being done, what variations have occurred, and what kind of temporary measures taken to make adjustments, modifications and so on. This feedback information may include quality, quantity, market share, customer service and financial information. The information gained through feedback is a useful for future planning and decision-making processes.

There are two types of feedback controls. One is self-correcting and the other is non-correcting. The self-correcting or servo- mechanism is one which regulates itself without outside intervention for corrective action to be taken. In steel mills, thermostat systems are used to make sure that heat remains uniform in various production processes.

The non-correcting system requires outside intervention before corrective action can take place. Statistical quality control is an example of this type. Through statistical sampling, deviations are identified. Quality control charts are used for this purpose.

THE ELEMENTS OF MANAGEMENT CONTROL SYSTEMS

Elements of a Control System. Every control system has at least four elements:

1. A *detector* or sensor-a device that measures what is actually happening in the process being controlled.

2. An *assessor*-a device that determines the significance of what is actually happening by comparing it with some standard or expectation of what *should* happen.

3. An *effector*-a device (often called "feedback") that alters behavior if the assessor indicates the need to do so.

4. A *communications network*-devices that transmit information between the detector and the assessor and between the assessor and the effector.

These four basic elements of any control system. We shall describe their functioning in three examples of increasing complexity: the thermostat, which regulates room temperature; the technological process that regulates body temperature; and the driver of an automobile, who regulates the direction and speed of the vehicle.

Thermostat The components of the thermostat are: (1) a thermometer (the detector), which measures the current temperature of a room; (2) an assessor, which compares the current temperature with the accepted standard for what the temperature should be; (3) an effector, which prompts a furnace to emit heat (if the actual temperature is lower than the standard) or activates an air conditioner (if the actual temperature is higher than the standard) and which also shuts off these appliances when the temperature reaches the standard level; and (4) a communications network, which transmits information from the thermometer to the assessor and from the assessor to the heating or cooling element.

Body Temperature. Most mammals are born with a built-in standard of desirable body temperature; in humans that standard is 98.60 F. The elements of the control mechanism by which the body strives to maintain that standard are: (1) the sensory nerves (detectors) scattered throughout the body; (2) the hypothalamus center in the brain (assessor), which compares information received from detectors with the 98.6' F standard; (3) the muscles and organs (effectors) that reduce the temperature when it exceeds the standard (via) panting and sweating, and opening the skin pores) and raise the temperature when it falls below the standard (via shivering and closing the skin pores); and (4) the overall communications system of nerves.

This biological control system is homeostatic-that is, self-regulating. If the system is functioning properly, it automatically corrects for deviations from the standard without requiring conscious effort.

The body temperature control system is more complex than the thermostat, with body sensors scattered throughout the body and hypothalamus directing actions that involve a variety of muscles and organs. It is also more mysterious; scientists know what the hypothalamus does but not how it does it.

Automobile Driver. Assume you are driving on a highway where the legal (i.e., standard) speed is 65 mph. Your control system acts as follows: (1) your eyes (sensors) measure actual speed by observing the speedometer; (2) your brain (assessor) compares actual speed with desired speed, and, upon detecting a deviation from the standard, (3) directs your foot (effect or) to ease up or press down on the accelerator; and (4) as in body temperature regulation, your nerves form the communication system that transmits information from eyes to brain and brain to foot.

But just as body temperature regulation is more complicated than the thermostat, so the regulation of a car is more complicated than the regulation of body temperature. This is because there can be no certainty as to what action the brain will direct after receiving and evaluating information from the detector. For example, once they determine that the car's actual speed exceeds 65 mph, some drivers, wanting to stay within the legal limit, will ease up on the accelerator, while others, for any number of reasons, will not. In this system, control is not automatic; one would have to know something about the personality and circumstances of the driver to predict what the actual speed of the automobile would be at the end point of the process.

Management

An organization consists of a group of people who work together to achieve certain common goals (in a business organization a major goal is to earn a satisfactory profit). A hierarchy of managers leads organizations, with the chief executive officer (CEO) at the top, and the managers of business units, departments, sections, and other subunits ranked below him or her in the organizational chart. The complexity of the organization determines the number of layers in the hierarchy. All managers other than the CEO are both superiors and subordinates; they supervise the people in their own units, and the managers to whom they report supervise them.

The CEO (or, in some organizations, a team of senior managers) decides on the overall strategies that will enable the organization to meet its goals. Subject to the approval of the CEO, the various business unit managers formulate additional strategies that will enable their respective units to further these goals. The management control process is the process by which managers at all levels ensure that the people they supervise implement their intended strategies.

Contrast with Simpler Control Processes. The control process used by managers contains the same elements as those in the simpler control systems described above: detectors, assessors, effectors, and a communications system. Detectors report what is happening throughout the organization; assessors compare this information with the desired state; effectors take corrective action once a significant difference between the actual state and the desired state has been perceived, and the communications system tells managers what is happening and how that compares to the desired state.

There are, however, significant differences between the management control process and the simpler processes described earlier:

1. Unlike in the thermostat or body temperature systems, the standard is not preset. Rather, it is a result of a conscious planning process. In this process, management decides what the organization should be doing, and part of the control process is a comparison of actual accomplishments with these plans. Thus, the control process in an organization involves planning. In many situations, planning and control can be viewed as two separate activities. Management control, however, involves both planning and control.

2. Like controlling an automobile (but unlike regulating room or body temperature), management control is not automatic. Some detectors in an organization may be mechanical, but the manager often detects important information with her own eyes, ears, and other senses. Although she may have routine ways of comparing certain reports of what is happening with standards of what should be happening, the manager must personally perform the assessor function, deciding for herself whether the difference between actual and standard performance is significant enough to warrant action, and, if so, what action to take. Then, since actions intended to alter an organization's behavior involve human beings, the manager must interact with at least one other person to effect change.

3. Unlike controlling an automobile, a function performed by a single individual, management control requires coordination among individuals. An organization consists of many separate parts, and management control must ensure that each part works in harmony with the others, a need that exists only minimally in the case of the various organs that control body temperature and not at all in the case of the thermostat.

4. The connection from perceiving the need for action to determining the action required to obtain the desired result may not be clear. A manager acting as assessor may decide that "costs are too high" but see no easy or automatic action guaranteed to bring costs down to what the standard says they should be. The term black box describes an operation whose exact nature cannot be observed. Unlike the thermostat or the automobile driver, a management control system is a black box. We cannot know what action a given manager will take when a significant difference between actual and expected performance, nor what (she assesses if any) action others will take in response to the manager's signal. By

contrast, we know exactly when the thermostat will signal the need for action and what that action will be; and, in the case of the automobile driver, the assessor phase may involve judgment, but the action itself is mechanical once the decision to act has been made.

5. Much management control is self-control, that is, control is maintained not by an external regulating device like the thermostat, but by managers who are using their own judgment rather than following instructions from a superior. Drivers who obey the 65 mph speed limit do so not because a sign commands it, but because they have consciously decided that it is in their best interest to obey the law.

Systems

A system is a prescribed and usually repetitious way of carrying out an activity or a set of activities. Systems are characterized by a more or less rhythmic, coordinated, and recurring series of steps intended to accomplish a specified purpose. The thermostat and the body temperature control processes described above are examples of systems. Management control systems, as we have seen, are far more complex and judgmental.

Many management actions are unsystematic. Managers regularly encounter situations for which the rules are not well defined and thus must use their best judgment in deciding what actions to take. The effectiveness of their actions is determined by their skill in dealing with people, not by a rule specific to the system (though the system may suggest the general nature of the appropriate response). If all systems ensured the correct action for all situations, there would be no need for human managers.

In this book, we focus primarily on the systematic, i.e., formal, aspects of the management control function. One can describe in considerable depth the various steps in the formal system, the information that is collected and used in each step and the principles that govern the system's operation as a whole. But it is very difficult, except in general terms, to describe the appropriate actions for managers encountering situations not contemplated in the formal system. These depend, among other factors, on the skills and personalities of the people involved, their relationships with one another, and the environment within which a particular problem arises. It is important to recognize, however, that these informal processes are strongly affected by the way the organization's formal control systems are designed and operated. Boundaries In this section, we define

management control and distinguish it from two of Manage- other systems-or activities-that also require both planning and control, Control strategy formulation and task control. Serious mistakes can be made if principles and generalizations specific to one system are applied in another.

As you will see, management control fits between strategy formulation and task control in several respects. Strategy formulation is the least systematic of the three; task control is the most systematic; and management control lies in between. Strategy formulation focuses on the long run, task control focuses on short-run activities, and management control is in between. Strategy formulation uses rough approximations of the future, task control uses current accurate data, and management control is in between. Each activity involves both planning and control; but the emphasis varies with the type of activity. The planning process is much more important in strategy formulation, the control process is much more important in task control, and planning and control are of approximately equal importance in management control.

Management Control

Management control is the process by which managers influence other members of the organization to implement the organization's strategies. Several aspects of this process are amplified below.

Management Control Activities. Management control involves a variety of activities, including:

- *planning* what the organization should do.
- *Coordinating* the activities of several parts of the organization.
- *Communicating* information.
- *Evaluating* information.
- Deciding what, if any, action should be taken.
- Influencing people to change their behavior.

Management control does not necessarily require that all actions correspond to a previously determined plan, such as a budget. Such plans are based on circumstances believed to exist at the time they were formulated. If these circumstances have changed at the time of implementation, the actions dictated by the plan may no longer be appropriate. While a thermostat responds

to the actual temperature in a room, management control involves anticipating future conditions in order to ensure that the organization's objectives are attained. If a manager discovers a better approach--one more likely than the predetermined plan to achieve the organization's goals-the management control system should not obstruct its implementation. In other words, conforming to a budget is not necessarily good, and departure from a budget is not necessarily bad.

Goal Congruence. Although systematic, the management control process is by no means mechanical; rather, it involves interactions among individuals, which cannot be described in mechanical ways. Managers have personal as well as organizational goals. The central control problem is to induce them to act in pursuit of their personal goals in ways that will help attain the organization's goals as well. Goal congruence means that, insofar as is feasible, the goals of an organization's individual members should be consistent with the goals of the organization itself. The management control system should be designed and operated with the principle of goal congruence in mind.

Tool for Implementing Strategy. Management control systems help managers move an organization toward its strategic objectives. Thus, management control focuses primarily on strategy execution.

Example. As of 1999, Wal-Mart with sales revenues of over $140 billion was the largest retailer in the world, thanks to its winning strategy of selling branded products at low cost. The company's management control system was directed toward the efficient management of store operations, which in turn conferred a cost advantage company wide. Data from over 3,500 individual stores on items such as sales, expenses, and profit and loss were collected, analyzed, and transmitted electronically on a real-time basis, rapidly revealing how a particular region, district, store, department within a store, or item within a department was performing. This information enabled the company to reduce the likelihood of stock outs and the need for markdowns on slow-moving stock, and to maximize inventory turnover. The data from "outstanding" performers among the 3,500 stores were used to improve operations in "problem" stores. Further, the company was able to reduce pilferage-related losses, a major concern, by instituting a policy of sharing 50 percent of the savings from decreased pilferage in a particular store, as compared to the industry standard, among that store's employees.

Management controls are only one of the tools managers use in implementing desired strategies. Strategies are also implemented through the organization's structure, its management of human resources, and its particular culture.

Organizational structure specifies the roles, reporting relationships, and division of responsibilities that shape decision-making within an organization. Human resource management is the selection, training, evaluation, promotion, and termination of employees so as to develop the knowledge and skills required to execute organizational strategy. Culture refers to the set of common beliefs, attitudes, and norms that explicitly or implicitly guide managerial actions.

Financial and Nonfinancial Emphasis. Management control systems encompass both financial and nonfinancial performance measures. The financial dimension focuses on the monetary "bottom line"-net income, return on equity, etc.; but virtually all-organizational subunits have nonfinancial objectives-product quality, market share, customer satisfaction, on-time delivery, and employee morale.

Aid in Developing New Strategies. As discussed earlier, the primary role of management control is to ensure the execution of chosen strategies. In industries that are subject to rapid environmental changes, however, management control information, especially of a non financial nature, can also provide the basis for considering new strategies.

Strategy Formulation

Strategy formulation is the process of deciding on the goals of the organization and the strategies for attaining these goals. In this book, we use the word goals to describe the broad overall aims of an organization, and the term objectives to describe specific steps to accomplish the goals within a given time frame.

Goals are timeless; they exist until they are changed, and they are changed only rarely. For many businesses, earning a satisfactory return on investment is an important goal; for others, attaining a large market share is equally important. Nonprofit organizations also have goals; in general, they seek to provide the maximum services possible with available funding. In the strategy formulation process, the goals of the organization are usually taken as a given, although on occasion strategic thinking can focus on the goals themselves.

Strategies are big plans, important plans. They state in a general way the direction in which senior management wants the organization to move. A decision by an automobile manufacturer to produce and sell an electric automobile would be a strategic decision.

The need for formulating strategies usually arises in response to a perceived threat (e.g., market inroads by competitors, a shift in consumer tastes, or new government regulations) or opportunity (e.g., technological innovations, new perceptions of customer behavior, or the development of new applications for existing products). A new CEO, especially one brought in from the outside, usually perceives both threats and opportunities differently from how his or her predecessor did. Thus, changes in strategies often occur when a new CEO takes over.

Examples. Louis V. Gerstner became the CEO of IBM in 1993. In the course of the next six years, he transformed the company from a mainframe computer manufacturer to a leader in networking systems, computer services, and e-business solutions.

Michael C. Armstrong took over the helm of AT&T in the mid-90s. By 1999 the company had undergone a major strategic overhaul, changing from a long-distance telephone operator to the nation's largest cable provider through the acquisition of companies such as TCI Communications for $50 billion and Media One for $60 billion.3

Other examples of companies at which new CEOs have made a huge difference include Michael Eisner at Disney, Ray Gilmartin at Merck, and John Reed at Citicorp.

Strategies to address a threat or opportunity can arise from anywhere in an organization and at any time. New ideas do not emanate solely from the research and development team or the headquarters staff. Virtually anyone might come up with a "bright idea," which, after analysis and discussion, can form the basis for a new strategy. Complete responsibility for strategy formulation should never be assigned to a particular person or organizational unit. Providing a means of bringing worthwhile ideas directly to the attention of senior management without allowing them to be blocked at lower levels is important.

Distinctions between Strategy Formulation and Management Control. Strategy formulation is the process of deciding on new strategies; management

control is the process of implementing those strategies. From the standpoint of systems design, the most important distinction between strategy formulation and management control is that strategy formulation is essentially unsystematic. Threats, opportunities, and new ideas do not occur at regular intervals; thus, strategic decisions may be made at any time.

Furthermore, the analysis of a proposed strategy varies with the nature of the strategy. Strategic analysis involves much judgment, and the numbers used in the process are usually rough estimates. By contrast, the management control process involves a series of steps that occur in a predictable sequence according to a more-or-less fixed timetable, and with reliable estimates.

Analysis of a proposed strategy usually involves relatively few people the sponsors of the idea, headquarters staff, and senior management. By contrast, the management control process involves managers and their staffs at all levels in the organization.

Task Control

Task control. is the process of assuring that specified tasks are carried out effectively and efficiently.

Task control is transaction-oriented-that is, it involves the performance of individual tasks according to rules established in the management control process. Task control often consists have seeing that these rules are followed; a function that in some cases does not even require the presence of human beings. Numerically controlled machine tools, process control computers, and robots are mechanical task control devices. Their function involves humans only when the latter prove less expensive or more reliable; this is likely to happen only if unusual events occur so frequently that programming a computer with rules for dealing with these events is not worthwhile.

Many task control activities are scientific; that is, the optimal decision or the appropriate action for bringing an out-of-control condition back to the desired state is predictable within acceptable limits. For instance, the rules for economic order quantity determine the amount and timing of purchase orders. Task control is the focus of many management science and operations research techniques.

Most of the information in an organization is task control information: the number of items ordered by customers, the pounds of material and units of

components used in the manufacture of products, the number of hours employees work, and the amount of cash disbursed. Many of an organization's central activities-including procurement, scheduling, order entry, logistics, quality control, and cash management-are task control systems. Some of them, though mechanical, can be extremely complicated.

Examples. Electronic devices may control an entire steel mill, with each piece of equipment instructed by a computer to carry out prescribed tasks. The computer senses the environment (e.g., the temperature of a steel ingot) . If its findings indicate a departure from the desired state, it either initiates corrective action or, if it lacks the capacity to do so on its own, conveys the need for correction to a computer that controls all the computers in one section of the mill. This computer in turn may refer the problem to a coordinating computer for the mill as a whole. The Manufacturing Resource Planning (MRP II) system used to control manufacturing operations in many companies requires millions of lines of computer instructions. The gear-switching mechanisms used to connect two parties in a telephone conversation cost billions of dollars. And systems for program trading and other types of decisions made by traders in the financial markets involve complicated decision rules and minute-by-minute information about the prices of hundreds of financial instruments.

As the above examples suggest, certain activities that were once performed by managers are now automated and have thus become task control activities. This shift from management controls to task control free's some of the manager's time for other management activities (unless it eliminates the manager's position).

Distinctions between Task Control and Management Control. The most important distinction between task control and management control is that many task control systems are scientific, whereas management control can never be reduced to a science. By definition, management control involves the behavior of managers, and this cannot be expressed by equations. Serious errors may be made when principles developed by management scientists for task control situations are applied to management control situations. In management control, managers interact with other managers; in task control, either human being are not involved at all (as in some automated production processes), or the interaction is between a manager and a non-manager.

In management control the focus is on organizational units; in task control the focus is on specific tasks performed by these organizational units (e.g., manufacturing Job No. 59268, or ordering 100 units of Part No. 3642).

Management control is concerned with the broadly defined activities of managers deciding what is to be done within the general constraints of strategies. Task control relates to specified tasks, most of which require little or no judgment to perform.

Impact of the Internet on Management Control

The information revolution started with the invention of the telephone by Alexander Graham Bell in the late 19th century. For consumers, the telephone provided a significant benefit-convenience. People no longer had to visit a store to get information about a product, determine its availability, or place an order. The pace of the information revolution accelerated with the invention of computers, gaining tremendous momentum in the 1990s with the advent of the Internet.

The Internet provides major benefits that the telephone does not:

. *Instant access*. On the Web, huge amounts of data can be sent to anyone, anywhere in the world in a matter of seconds.

• *Multi-targeted communication* . The Internet has a vastly expanded one to-many reach; one Web entry can reach millions of people.

• *Costless communication* . A business that uses telephone operators to interface with customers must pay for telephone personnel salaries, toll-free ("800") calls, and the bricks and mortar to support the customer service function. Communication with customers via the Internet avoids all these costs.

• *Ability to display images*. Unlike the telephone, the Web enables consumers to see the products being offered for sale.

THE TEN COMMANDMENTS OF EFFECTIVE CONTROL SYSTEM

The following are the ten essential or basic requirements of an effective control system:

1. Suitable: The control system must be suitable for the kind of activity it is intended to serve. Apart from differences in the systems of control in different business, they also vary from department to department and from one level of

the organization to the other. A system of control useful at a higher level of management will be different in scope and nature from that in use at the operative level. Several techniques are available for control purposes such as budgets, break-even points, financial ratios and so on. The manager must be sure that he is using the technique appropriate fcr control of the specific activity involved. The tools appropriate are not necessarily the same as between different departments or between two different organizations. For example, the sales department and production department may use different tools of control. Again, a small business will not have as elaborate a control system as a large organization.

2. Understandable: The system must be understandable, i.e., the control information supplied should be capable of being understood by those who use it. A control system that a manager cannot understand is bound to remain ineffective. The control information supplied should be such as will be used by the managers concerned. What may be considered valuable and understandable to one manager may not be so to another. It is, therefore, the duty of the manager concerned to make sure that the control information supplied to him is of a nature that will serve his purpose. As an illustration, it is quite possible that top managers may understand a complicated system of control based on statistical break-even charts and mathematical formulae whilst to the lower level manager such information would be of very doubtful utility, being beyond their powers of comprehension. In this sense, the data supplied as information must be understandable and helpful.

3. Economical: The system must be economical in operation, i.e., the cost of a control system should not exceed the possible savings from its use. The extent of control necessary should be decided by the standard of accuracy or quality required. A very high degree or standard of accuracy or quality may not really be-necessary. Undue complexity of the control system should be avoided to keep a check on the costs of control. It, therefore, becomes necessary to concentrate the control system on factors, which are strategic to keep the costs down and the system economical.

4. Flexible: The system of control must be flexible, i.e., workable even if the plans have to be changed. In case the control systems can work only on the basis of one specific plan, it becomes useless if the plan breaks down and another has to be substituted. However thoroughly the plans may have been formed or the

planning premises established, unforeseen circumstances can upset the best-laid plans. A good control system would be sufficiently flexible to permit the changes so necessitated. For example, Goetz pointed out that it was possible that some particulars within the managerial plan might fail. "The control system should report such failures and should contain sufficient elements of flexibility to maintain managerial control of operations in spite of such failures".

5. Expeditious: Nothing can be done to correct deviations, which have already occurred. It is, therefore, important that the control system should report deviations from plans expeditiously. No useful purpose can be served by a deviation detected months after its occurrence. The objective of the control system should be to correct deviations in the immediate future. This requires that the time-lag between the occurrence of a deviation and its reporting be kept at the minimum possible.

6. Forward Looking: The control system must, therefore, be forward looking, as the manager cannot control the past. In fact, the control system can at times be so devised as to anticipate possible deviations, or problems. Thus deviations can be forecast so that corrections can be incorporated even before the problem occurs. Cash forecasts and cash control is an example in point where a financial manager can forecast the future cash requirements and provide for them in advance.

7. Organizational Conformity: Since people carry on activities, and events must be controlled through people, it is necessary that the control data and system must conform to the organizational pattern. The control data must be so prepared that it is possible to fix responsibility for the deviations within the areas of accountability. For example, where factory costs are accumulated in a manner other than on the basis of areas of responsibility, they may lose much of their values as an instrument of control. In this case, the actual costs in a department may be out of line with the standards set without the department knowing whether the deviation has been caused by something within its control. In this sense, organization and control are difficult to separate, being dependent on one another for effective management.

8. Indicative of Exceptions at Critical Points: The management principle of exception should be used to show up not only deviations but the critical areas must also be fixed for most effective control.

9. Objectivity: As far as possible, the measurements used must have objectivity. Unfortunately, particularly whilst appraising a subordinate's performance, the subjective element cannot be entirely removed. Here the personality of both the manager as well as his subordinate would be reflected in the final judgment and can bias the appraisal. The use of indefinite terms can frustrate the subordinate like being told that he is not doing a good job. He is likely to react more favorably to objective standards.

10. Suggestive Of Corrective Action: Finally, an adequate control system should not only detect failures, but must also disclose where they are occurring, who is responsible for them, and what should be done to correct them. Overall summary information can cover up certain fault areas. For instance, it is insufficient to show merely a decline in the profits. The reason for such decline must also be indicated, such as a drop in the sales volume or an increase in the costs. Even this is insufficient. The information should also disclose in which market areas the sales declined or which specific costs had increased. Where a system merely detects deviations but does not indicate corrective action, the control system becomes an exercise in futility.

Benefits of Control

Following are the advantages of an effective system of control

1. Control provides the basis for future action. It will reduce the chances of mistakes being repeated in future by suggesting preventive steps.

2. Control facilitates decision-making. The process of control is complete only when corrective measures are taken. This requires taking a right decision as to what type of follow up action is to be taken.

3. An effective system of control facilitates decentralization of authority because the top executives get the feedback information constantly which helps them to ensure that the decisions taken at the lower levels are consistent with the policies of the enterprise and are in the interest of the enterprise.

4. Control and planning go hand in hand. Control is the only means to ensure that the plans are being implemented in real sense. Control points out the shortcomings of not only planning but also other functions of management such as organizing, staffing and directing.

5. The existence of a control system has *a positive impact on the behavior of the employees.* They are cautious while performing they know that their superiors are observing them.

6. *Control helps in co-ordination* of the activities of the various departments of the enterprise by providing them unity of direction.

Limitations of Control

A control system may be faced with the following limitations:

1. An enterprise cannot control the external factors such as government policy, technological changes, fashion changes, etc.

2. Control is an expensive process because sufficient attention has to be paid to observe the performance of the subordinates. This requires an expenditure of a lot of time and effort.

3. Control system loses its effectiveness when standards, of performance cannot be defined in quantitative terms. For instance, it is very difficult to measure human behavior and employee morale.

4. The effectiveness of control mainly depends on the acceptance of subordinates. They may resist control because they may feel that it will reduce or curtail their freedom. Control also loses its significance when it is not possible to fix the accountability of the subordinates.

Some Distinguishing Characteristics

While management control has characteristics common to all forms of control, it also has a number of distinguishing characteristics. First, management control refers specifically to the control functions within a business enterprise. Second, it concerns the business manager's control functions. Third, it is control designed to help a business enterprise reach its over-all objectives and it is always viewed as an extension plan. In other words, management control is another means managers have to achieve corporate objectives more effectively, whether it be at the staff, management, or operational level, whether the controls are used to protect assets or to stimulate creative use of those assets, or whether the controls are used to maintain production efficiency or to make decisions to purchase equipment.

The Process Followed in Solving Control Problems and Setting Up Controls

The approach to solving management control problems closely parallels the fundamental approach to problem solving/decision making. The steps in the problem-solving decision-making process, as outlined by Peter Drucker, are as follows:

1. Diagnose the situation and review all of the facts in order to find and define the problem.

2. Examine the problem and review facts in order to find the key factors affecting the problem and its solution. This step is sometimes referred to as premising.

3. Develop alternative solutions to the problem.

4. Test and evaluate the alternatives to determine the best solution.

5. Construct a clear statement of the solution selected, and converts the decision into a plan of action.

The following is an outline of how this process can be applied to management control problems:

1. Diagnose the situation in order to rind and define the control problem. The investigation should result in definitions (i.e., simple statement) of:

* The control problem, which must be solved.

* The scope of the problem, its management implications, and tangential areas related to the control problem.

* The extent of the solutions needed and the method to be used in solving the problem.

2. Examine the control problem and review the facts in order to find the key factors affecting the problem and its solution. The principal areas of investigations would be:

* Corporate planning factors, such as the nature of the company's business, the company's objective and major policies, the timing of major steps in the plan, and other factors related to the corporate long-range plan.

* The nature of the control problem being solved or of the operation for which the controls or control system is being created. For example, the problem could

be an information system, capital equipment acquisition, production, inventory or other operational control, or any of wide range of control situations.

* The purpose for which the controls or control system is being developed.

* The standards or criteria against which performance will be measured or compared.

3. Develop alternative solutions. The areas covered would be:

* Mechanics. The specific tools of analysis or the actual control system to be used. These would include the reporting forms needed and the precise information wanted on these forms, a design for the information system proposed and the organization needed, the mathematical and analytical models, which will be used, and the assumptions to be used for quantifying risk and uncertainty.

* Implementation. The way to put the new solution (if one is proposed) into operation.

* The exercise of control. Where the controls or control system are automatic, this step in solving the control problem would be included as part of the mechanics. If executive judgment and action are required, principles of action and attitude and procedures must be spelled out. How control is exercised and how decisions are made on the basis of the control information developed are discussed in the next page.

4. Test and evaluate these alternatives to determine the control tools, techniques, or system, how they can best be put into operation, and how they can be used most effectively by managers to achieve over-all corporate objectives.

5. Prepare a written statement of the solutions selected in all major areas and proceed to carry it out. As the analysis of the situation proceeds, he develops tentative alternative solutions to assist in testing and checking the feasibility of certain courses of action. For example, he may first examine the various alternative computerized information systems. After investigating each of these alternatives, he may come to the conclusion that a computerized information or control system is too costly, and that a combined manual and punched card processing system will be best for his operation. At this point he will develop additional alternatives.

As the analysis progresses further, therefore, revised solutions are usually developed. This is the phase during which the executive has the opportunity to correct, adjust, or confirm the earlier solutions in the light of subsequent analysis and evaluation.

Lastly, he develops final solutions. This is the stage during which the solutions are stated in the formal written plan presented to management.

This same process is at work in Step 2 of the management control process when the executive is' seeking, defining, and quantifying the over-all key factors affecting his solution. For example, while it is important to know that standards

Must be established, the executive's real job is to develop the specific standards and the format in which they will be presented. Such questions as how those using the standards Will respond to them and use them and whether the

Standards are a true reflection of the corporation's long-term goals and crucial to the success or failure of the control system. Constant probing, testing, and hypothesizing are necessary before a clear definition of the most relevant key factors can be formulated.

The process is repeated again when developing plans for putting the new system into operation, when, for example, developing ways to get operating managers to accept a new control system. And nothing can be done to by-pass or simplify this continual process of investigation and evaluation so necessary for successful management control. The existence of these difficulties and complexities does not mean that management control is not a science, for underlying the back-and-forth intellectual searching described above are the familiar steps of problem definition, premising, and developing, testing, and implementing the solution.

What the complexities do mean is that knowing management control theory is only a small beginning. Adapting that theory to solving the problem at hand is the art of management control, which complements the science. It is an art, which is critical to the successful application of the science of management control in a business situation. It is an art, which requires considerable experience and judgment, and so is learned principally by doing.

Exercising Control

Once a control problem has been resolved and a new control tool or system developed, then the question of how to use the system or tool most efficiently for controlling and making control decisions must be explored. In many instances control is exercised automatically - performance is checked and adjustments are made by automated equipment. A home-heating system is an example of this type of automated control, as are many modern chemical plant operations. The type of control being discussed here is not, however, automatic control, but the type of control that involves executive judgment and executive action in using the control tools or system to achieve broad corporate objectives.

Above all, management control requires that a balance be maintained between compliance and stimulation in exercising control. For example, when variances from budget occur, what balance can be struck between criticizing operating personnel for noncompliance and taking constructive steps for educating them in corporate goals? Or how much use can be made of the discussions of the variances to better coordinate functional operations, such as production and marketing, without at the same time destroying the system's - value in maintaining compliance?

In exercising control, the executive can limit himself merely to insisting upon compliance - protecting assets, policing, checking accuracy, gathering more information, reprimanding, and the like. However, this is too restrictive a viewpoint. Management control dictates that the executive strives to attain more positive goals in exercising control. The primary aim of management control is to stimulate better use of assets, create new ways to do business, better coordinate the efforts of individual operating departments, educate operating personnel so that their efforts are more closely geared to accomplishing specific corporate objectives-in short, to create an enabling atmosphere, whose vistas are broadened, not narrowed, by the controls.

A study of the introduction of a new control system at H.J. Heinz, Inc., in the Mid-1950s illustrates this point. At Heinz the development of the new control system started with long-range planning. The six development steps were:

1. Establishing the goals of the business.

2. Forecasting conditions.

3. Developing plans.

4. Preparing and scheduling estimates.

5.Controlling commitments and expenditures.

6. Reporting and appraising results.

The organization for control was then established and the responsibility for introducing new controls was fixed.

Factors Affecting Managerial Philosophy

Application of the concept of management control requires as a minimum the following:

1. Identifying key factors in the business operation, which needs to be controlled in order to achieve a given over-all, result;

2. Specifying the basis for establishing standards of performance for each control factor, such as forecasts, budgets, standard costs, turnover ratios, and lead times;

3. Defining the information-accounting and operating data and statistics that must be accumulated to measure status and performance;

4. Establishing a reporting structure that identifies performance in each control area, relates causes and effects, signals trends, and identifies results by responsibility under the plan of organizations.

The development of such a management control system requires careful study of the total enterprise and its separation into controllable components. A close scrutiny must also be made, of each component in terms of its operational characteristics.

What has been so far stated represents "received doctrine". Recognizing that, although some firms incorporate such measurements and information into their control systems, most of them do not. But we must go beyond the minimum steps outlined for developing a philosophy of control. As Peter F. Drucker explains, "We are recently acquiring a great capacity to design 'controls' in businesses, based upon a great improvement in techniques, especially in the application of logical and mathematical tools to business data, and in the ability to process and analyze large masses of data very fast".

Drucker then raises the question: "What do these improved techniques mean for control?"... Might we simultaneously be enlarging the means to control (that is, the measurement and information systems) without achieving the end results of control, which we seek? This may well be the case, because in too many instances the measurements and information pertain to historical data; yet the most effective controls are known to deal with the future, about which we know far too little. Frederic G. Donner, chairman of the board of General Motors, for example, points out that he spends far more time contemplating forecasts of future conditions than reviewing financial data of past operations. Management has at its disposal three positive actions by which control can be exercised: 1.Planning ahead; 2.day-to-day scheduling, direction and supervision;

3. After-the-fact response to data systems feedback.

Any present or prospective controller considering his own philosophy of control would do well to bear in mind one distinction: we may find ourselves with too many controls and too little control. The individual in a firm who is most directly charged with producing the means to control (information and measurement systems) is the "controller". Most knowledgeable executives, controllers included, quickly agree that it would be a gross mistake for controllers to use the controls to exercise personal control in the business. As staff executives, controllers must recognize that line executives at the various levels in administration determine whether the firm can truly be said to be "in control". The Financial Executives Institute has made a further distinction: the functions of controllership include establishing, coordination, and maintaining an integrated plan for the control of operations, through authorized management. According to James L. Pierce, vice president-finance of A.B. Dick Company, these last three words need emphasis if such a plan is to become operational.

Because we deal with human beings in the conduct of business enterprises, effective control cannot be achieved unless measurement and information systems allow latitude for personal accomplishment and contribution. Therefore, a valid philosophy of managerial control utilities the premise that even the most complete system of quantitative control must be consonant with the qualitative control provided by the human organization.

Four additional factors stated by Drucker which operate to affect the managerial philosophy are:

1. Measuring business data interferes with the data measured.

2. Measures of business data must be appropriate.

3. There are diminishing returns on internal management controls.

4. Business is a unique control situation.

These factors warrant consideration at this point.

1. **Measuring business data interferes with the data measured:** In the physical sciences, measurement is an objective process: it changes neither the object measured nor the individual making the measurement. In business, however, as in many other areas of the social sciences, quite often the act of measuring interferes with the event being measured. The mere fact that an item (such as return on investment, inventory, turnover, or sales-revenues) has been selected for measurement attaches an undesirable bias and lack of objectivity to the item. We are aware that the item has been selected for measurement and control-therefore it must be important.

2. **Measures of business data must be appropriate:** Drucker cites as an example a report of an industrial relations department, which showed grievances from the working force were running one-half of one percent (.005) for "five grievances per thousand employees per month". On the surface this appeared.

Similar non-normalized statistics reflect that "10 percent of the inventory items account for 75 percent of the rupee value of inventories held", or "90percent of the rupee volume of business is usually represented by less than 5 percent of the number of products a company handles". There are certainly implications here for what the manager needs to control, as well as for the nature of the measurement and information systems and how they should reflect such data for him. These are isolated illustrations of the kind of measurements on which many managers must rely. The traditional measurement systems, accounting included, too often conceal rather than highlight most of the truly significant data needed by managers.

A critical need in management is to increase the ability to perceive the essential items in a given situation and to direct attention to them, for proper identification of the problem and its essential elements often provides the solution to the problem. An information and measurement system which would focus attention only on crucial events and results would give any manager much more aid and would result in much better performance than we have any right to expect under typical reporting systems.

3. Diminishing returns on internal management controls: The last two decades have witnessed concentration on internal operating efficiencies. In many industrial firms today further substantial internal operating economies may no longer be reasonably expected. Although it is perfectly logical to continue to monitor through internal control devices a firm's processes and operations to assure their continuation in a "state of control", nevertheless the highest "payoffs" from additional control efforts lie outside the firm. Using an example from industry, it may be argued that the 50 percent of the consumer's dollar, which is typically expended in the distribution, process (after the product is physically completed) offers far greater opportunities for added control benefits. But, at present, little of the total control effort is being expended outside of the producing firm.

Admittedly the information and measurements in our control systems are more readily adaptable to internal rather than external monitoring; but the greatest opportunity lies outside the firm. One aspect of this control system should be evaluation of outside earnings possibilities. Diversification and merger studies have made substantial advances in recent years, yet the external facets of control have been barely explored by most companies. The whole field of entrepreneurship offers an opportunity for control system applications.

4. Business is a unique control situation: We have seen many control applications transferred to business almost intact from the physical sciences. In many cases such applications have been highly successful. But should not the business field be regarded as a separate, meaningful sphere or human endeavor, which is subject to control? Business certainly presents a unique appearance to those interested in controls and in control. Unlike all natural or mechanically operated systems, it exhibits a wide range of events and results that are of profound importance to its successful operation, but which cannot easily be quantified within existing systems of Measurement.

Business may well be the only system possessing such a wealth of both quantifiable and non-quantifiable results and events of primary importance to successful control. This offers a unique opportunity for controls if we are but cognizant of the non- quantifiable as well as the quantifiable results and events. Management scientists in particular, having a background in physics or engineering, have had difficulty in realizing that practically every definition underlying measurement of accounting data (accounting entities, accrual

accounting, conservatism, consistency, cost, going concern, disclosure, matching cost against revenue, materiality, objectivity, realization, stable measuring unit, and uniform accounting period) is based on assumptions and practices which were not always easily rationalized and cannot presently be physically verified. We have defined the concepts-and then measured. Only within very rigid limitation are accountants permitted to change the definitional ground rules as they operate in areas where they have been bold enough to attempt measurements of business data. Certainly these conventions and practices have facilitated measurement of many business data, but we need to extend the areas where measurement can be achieved. As an accountant, it worries me that far too many of the measurements in accounting are the recorded facts about past events. Unfortunately, accountants seem to be too little concerned about the "facts" of the future. And, as we have pointed out, too great a preponderance of the measured facts of the past concerns internal, rather than external, events and results.

For these two reasons, important developments on the outside- especially as they pertain to the future-are not measurable until it is too late to exercise control. It follows that we are whipsawed by day-to-day events and results outside our control. A balance between the measurable and non-measurable

Where does this leave us in our search for a philosophy of control? Accountants, more than most professional men, recognize that a business is a separate entity and at the same time realize that this is a legal "fiction!' in more ways than one. A business is presumed to possess its own resources and objectives; on the other hand, a business is comprised of persons, each with his own purposes, ambitions, ideals, and needs. Successful businesses satisfy the ambitions and needs of their members, as individuals, and do so through systems of incentives, rewards, deterrence's, and penalties. Here lies the real regulatory control, of business: people at work.

Approached with a proper appreciation for the ultimate control which lies in idioms "people harmoniously at work" at all levels Of the Organization, the "received doctrine" of managerial control can be effective to the degree with which it:

1. identifies key factors needing control;

2. establishes standards for measuring achievement;

3. defines measures of status and performance;

4. reports and analyzed accomplishment by responsibility;

5. controls before-the-fact through preplanning;

6. highlights critical data for managers;

7.increasingly seeks to monitor events external to the firm, even though in the past they may have been regarded as non- quantifiable.

Principles of Management Control

Classification of Principles: One of the major purposes of a theory is to explain the nature of a subject by presenting a clear and systematic view of it With this in mind, it appears that managerial control can be analyzed by placing the basic principles of control into the categories of 1.Those dealing with the nature and purpose of control, 2. Those having to do with the structure of control, and 3.those explaining the process of control. (The same classification of principles could, no doubt, be used for the managerial functions of organizing and planning, and perhaps also for staffing and direction.

Purpose of Control

The purpose of managerial control seem to be reflected in five principles, which may be summarized as follows:

1. Principle of Assurance of Objective: Controls must contribute to the accomplishment of group objectives by detecting deviations from plans in time and in a manner to make corrective action possible.

It is obvious that the purpose of all organized enterprise is the accomplishment of group objectives, ends that cannot be accomplished by individuals acting along. This essential fact has been recognized in many analyses of management.

2. Principle of Efficiency of Control: Controls are efficient if they effectively detect deviations from plans and make possible corrective action with the minimum of unsought consequences.

Chester Barnard has very clearly pointed out the applicability of the scientific concepts of effectiveness and efficiency to systems of human cooperation. A control may be effective in the sense that it does assure the

attainment of objectives, but it is inefficient if it does so at unnecessarily high cost in rupees, hours, lost morale, or individual dissatisfaction.

3.Principal of Control Responsibility: only the manager responsible for the execution of plans can exercise Control.

The principle follows logically from the two preceding it. If the organization structure, through its delegation of authority and assignment of tasks, gives a manager responsibility for the accomplishment of certain plans or portions of plans, this responsibility cannot be waived with out changing the organization. It is logically and practically inconsistent to expect a manager to make and accomplish plans and not to expect him to exercise control to make and sure that these plans are being accomplished. Yet this principle is sometimes misunderstood in practice. Some managers expect control to be exerted only from some top point in an enterprise, or they wait to be told from above what controls to exercise and when.

4. Principle of Future Controls: Effective control should be aimed at preventing present and future deviations from plans. It has sometimes been said that planning is looking ahead and control is looking back. This seems to be a distorted view of control. Just as planning must be forward looking, so must control. Since the manager cannot possibly control the past, and too seldom - can move fast enough to detect and correct

Current deviations from plans, his controls should be aimed at the future.

5. Principle of Direct Control: The most effective technique of control in an enterprise is to assure the quality of subordinate managers.

Most controls used by managers are actually indirect controls because they are based on the need to keep subordinates, particularly managerial subordinates, from making mistakes. Unquestionably, the best and most direct kind of control is to assure the best possible quality of managers. Able and well trained managers plan well and thoroughly, delegate authority, assign tasks, and do the most effective job of selecting, training, and directing subordinates. They make fewer mistakes and require fewer indirect controls.

The Structure of Control

A second group of three principles are significant for the structure of control techniques, particularly in their relation to plans, organization, and the managerial incumbent.

6. Principle of Reflection of Plans: Controls must be designed so as to reflect the character and structure of plans.

This principle underlines the fact that controls must be tailored to individual plans. Thus, if the control of costs is the aim, the control techniques used must be based on planned costs of a definite and specific type. If one would control inventory, clearly the controls must take into account and follow those plans, which influence inventory-, and true inventory control must be based upon the entire programme of production planning and scheduling, purchasing, shipping, warehousing, Wes, and finance. Too often, in these and similar cases, the manager deceives himself by thinking he is controlling an aspect of operation when is control technique is not designed to reflect the pertinent plans involved.

7. Principle of Organizational Suitability: Controls must be designed to reflect organization structure.

Since managers and their subordinates are the means through which the events of planning must be accomplished, it follows that effective controls must be applicable to a manager's authority area and must therefore reflect the organization structure. Consequently, any device of control must be tailored to the manager and his position in the organization, and information to appraise performance against plans must be suitable to the manager who is to use it. Urwick has expressed this as the principle of uniformity and has emphasized that "all figures and reports used for purpose of control must be in terms of the organization structure".

8. Principle of Individuality of Controls: Controls must be designed to meet to personal needs of the individual manager mould a manager into his own image, it is a fact of fife that what a manager control understand or will not understand cannot be useful to him for control. What might be a delight to the figure-minded treasurer might be abhorrent to the plant superintendent. What might be meaning full to the chief engineer might be incomprehensible to the sales managers. Some managers may like reports~ others tables, some charts,

and still others Mathematical formulae or curves. Control devices and information are important enough that they should be tailored to these needs.

The Process of Control

In the operation of controls, there appear to be six principles, which point to the most effective possible techniques of control. To be sure, control, being so much a technique, rests heavily on the art of management, on "know-how" in a given instance. But experience in control yields certain benchmarks, which no manager should overlook in practice.

9. Principle of Standards: Effective and efficient control requires objective, accurate, and suitable standards.

Standards are authoritative criteria by which performance can be measured. The principle of standards implies that every plan must have measures of effectiveness, which are as specific, and simple as possible and which accurately measure whether a planned programmed is being accomplished.

Not only are such standards highly desirable from the standpoint of giving the manager a precise measurement of operations in relation to plans, but also they are desirably because events are controlled through people. Actual performance is sometimes camouflaged from the manager by a subordinate's sparkling or dull personality or by his ability to "sell" a deficient performance. Thus measurements of performance that are not objective can often be wrong. Moreover, good standards objectively applied as a measure of a subordinate's performance are most likely to be accepted by the subordinate as fair and reasonable.

10. Principle of Strategic Point Control: Effective and efficient control requires that attention be given to those factors which are strategic to the appraisal of performance.

It is ordinarily wasteful and unnecessary for a manager to follow every detail of the execution of plans. What he must know is that plans are being executed in such a manner that their goals can be accomplished. He should, therefore, concentrate his attention on selected parts of performance, which win, indicate whether significant deviations in the total plan are occurring or win occur.

There are no easy guidelines, which might be applied by a practicing manager to determine the strategic points he should watch, since the selection of these is predominantly a matter of the managerial art. Perhaps the manager can reach his own solution to the problem by asking himself what things in his operations will show him best whether the plans for which he is responsible are being accomplished.

11. The Exception Principle: Efficiency in control requires that attention of the manager be given primarily to significant exceptions.

This principle, which was pointed out many years ago by Frederick Taylor, is sometimes confused with the principle of strategic point control. But they arc essentially different concepts even though both have to do with the utilization of standards. Strategic point control refers to the selection of certain key factors, which determine whether performance conforms to plans, while the exception principle has to do with watching for (and taking action with respect) significant deviations at these points.

The difference between the exception principle and the principle of strategic point control can be illustrated by the techniques a sales manager might employ to control field sales. He might select as critical points to watch such items as sales per salesman sales by products and by territories, or gross profits from sales by product. However, in watching these critical points, he would see no need for action unless he detected deviations beyond limits he regarded as normal, that is, deviations which constitute noteworthy exceptions.

The exception principle is often quoted as an essential requirement of managerial control efficiency. However, the manager who first chooses the fewest practicable strategic points to watch, and then concentrates on exceptions increases his efficiency markedly. The necessary number of strategic points to be watched win depend upon the importance of the plan and the extent to which strategic points showing progress under the plan can be found or devised. This difference might be illustrated by practices in quality control. It may be important to test carefully every part of a missile guidance and control system and hold each part to close performance tolerances; but in the missile fuselage shell there might be only few points to be checked, and the allowable tolerance might be relatively broad.

12. The Principle of Flexibility of Controls: Controls should incorporate sufficient flexibility to remain effective despite the failure of plans.

Stated negatively, this principle, first given clear form by Goetz, ** means that controls should not be so inextricably bound into a -particular plan that, should unforeseen events or shifts in goals make the plan unworkable, all control is lost. This principle is best illustrated by the considerations, which led to the flexible, or variable, gadget. Such budgeting, which provides for budgets to be changed quickly and virtually automatically if the business outlook changes,

13.Principle of Review: The control system should be reviewed periodically.

14. Principle of Action: Control is only justified if measures are undertaking to correct indicated or experienced deviations from plans through appropriate planning, organizing, staffing, and directing.

REVIEW QUESTIONS

1) Define the concept of management control. Discuss the nature of control.
2) Explain the importance of control to a business enterprise.
3) Why is control a must in business management? What are the requirements of an effective control system?
4) Examine important features of controlling. What are the basic steps in process of controlling?
5) Discuss the objectives and limitations of Managerial control.
6) Explain the different steps involved in the control process.
7) Explain the following:

   a) Forward-looking control.

   b) Principle of Exception.

1) Management control begins with corporate planning. Do you agree? State your views.

* * *

Unit - 2

Control and Organizational Behavior - Types of organizations and their implications -Types of organizations and their implications - Types of control and variations in controls based on organizational structure and design.

CONTROL AND ORGANIZATIONAL BEHAVIOUR

An organization is basically an association of human beings. One major problem of modern organizations is to maximize the efforts and contributions of these human beings. These efforts and contributions depend upon human behavior. Therefore, managers must understand the-way human beings behave and the reasons behind their behavior.

Behavior in Organizations

Behavior is what a person does. More precisely it refers to the observable and measurable activity of human beings. The basic unit of human behavior is activity which maybe physical *(e.g.,* handling a machine) or mental *(e.g.,* making decisions), Thus, behavior is what an individual do6s in a given environmental situation. An organization is a socio-technical system concerned with achieving objectives, maintaining the internal system and adapting to the external environment.

Organizational behavior may thus be defined as the study of the behavior of people (as individuals and as groups) in organizations. Tat explains in psychological terms what goes on within the organization. According to Keith Davis, "Organizational behavior is the study and application of knowledge about human behavior in organizations as it relates to other system elements such as structure, technology, and the external social system." In the words of Joe Kelly, "Organizational Behavior is the systematic study of the nature of organizations, how they begin, grow, develop, and their effect on individual members, constituent groups, other organizations and larger institutions."

An analysis of the above definitions reveals the following features of organizational Behavior:

(i) Organizational behavior deals with human behavior in the organizational setting. It may, therefore, be considered as human behavior at work.

(ii) Organizational behavior can be the behavior of the members of an organization toward each other, toward the organization, toward the clients and toward the society at large.

(iii) Organizational behavior focuses primarily on people. Technical, economic, structural and other elements are considered only as they relate to people.

(iv) Organizational behavior seeks to fulfill both employee needs and organizational objectives. It attempts to balance human and technical values at work by combining productivity with employee satisfaction.

(v) Organizational behavior may be individual behavior or group behavior. As human beings constitute the vital resource of an organization their behavior as individuals is basic to it's functioning. However, most activities are organised in units or sections.

Effective working of a unit or section requires that members should work as a closely-knit group or taint. The dynamics of these groups (group dynamics) or group behavior is, therefore, equally important. Individual behavior and group behavior interact with each other.

(vi) Organizational behavior has psychological foundations. Many of its core concepts are borrowed from behavioral science like psychology, sociology and anthropology. Perception, learning& attitudes, motivation, personality, and so on are the major concepts. Organizational behavior is not a discipline in the usual sense but rather an eclectic field of study that integrates knowledge of the behavioral sciences.

(vii) Organizational behavior is both an art and a science. It contains knowledge (science) about human behavior in organizations. It also involves skill (art) in applying that knowledge. It is an inexact science and a young field of, study. But it is empirical and interpretative based on rational thinking.

(viii) The basic purpose of organizational behavior is to explain and predict human behavior in organizations. It is goal-directed and action oriented.

(ix) Organizational behavior is a dynamic rather than a static concept. Every change in the social system is reflected in organizational behavior through the behavior of individuals.

(x) Organizational behavior is generally nether neither autonomous nor spontaneous. Rather it is caused by several internal and external factors. Internal factors include the needs, values and other personality characteristics of the members of the organization. The structure, philosophy and culture of the organization are also internal variables. External variables refer to the environment outside the organization. Organizational behavior has a cause-effect relationship. This is shown below:

S<>O<>B

In this model, stands for the stimulus or situation (external environment). It incorporates all aspects of the environment physical, socio-cultural, etc, 0 is the organism both as a physiological being and as a psychological being (motivation). The double-headed arrows between S and 0 represent interaction between the situation and the organism. This interaction causes behavior (B).

Cause and effect relationship in organizational behavior has several implications. First, it implies that human behavior is orderly and systematic rather than arbitrary or random. *Secondly,* human behavior ca n be understood and predicted if causes behind the behavior are analyzed. Thirdly, human behavior is not perfectly predictable because it is caused by a large number of interrelated and changing factors, Lastly, human behavior can be controlled by manipulating the causes behind it.

Scope of Organizational Behavior

Organizational Behavior revolves around two fundamental components;

1. The nature of man, and
2. The nature of organization.

There are four basic factors with the help of which the nature of people can be understood.

(i) Individual Differences. People have many things in common. They generally feel and behave alike in the moments of joy and sorrow. At the same time individuals differ widely in several ways. Individual differences are found both in personal variables and situational variables. Individual variables include age, sex, education, intelligence, personality, attitude, experience, value system, cultural background, etc. Situational or environmental variables consist of type of organization, nature of supervision, type of incentives,' work design and work

method, physical and social environment at the work place. These individual differences cause differences in the behavior of people. Different people react to the same situation in different ways at the same time. Similarly, the same individual may react to the same stimulus differently at two different points of time.

Individual differences have important implications. The differences imply that management should not adopt one common approach towards all employees. Management can achieve the desired behavior from individuals by treating them individually. Managers should learn to diagnose and appreciate the individual differences. They must have the personal flexibility and the range of skills necessary to vary their own behavior. If the needs and motives of subordinates are different, they must he treated differently.

(i) Individual differences: require that justice and rightness with employees shall be individual not statistical. Individual is the nerve center of organizational behavior. All policies and programmes designed to improve the work environment should satisfy the individual operating in the organization. It is the individual who should feel satisfied with the role assigned to him. Quantity and quality of work can be best only when the individual best qualified to perform it performs each operation. The understanding of individual differences not only solves the problem of assignment of duties but also helps in taking best out of people by motivating and leading them accordingly. However, it may not always be possible for management to treat each employee differently particularly in the matters of pay and working conditions.

(ii) The Whole Person. Different aspects of an individual cannot be separated from one another. When an organization employs a person for his skill his brain and heart cannot be excluded, as these are inseparable. Therefore in spite of differences in an individual's traits his skill carries with it the influence of his environment. Similarly, his private life is bound to influence his work behavior just as the physical environment of the workplace influences his emotions and aspirations. Management should, therefore, consider the whole person while dealing with employees.

(iii) Caused Behavior. A person's normal behavior is caused by his need structure. Management can influence the behavior of employees by satisfying their needs. Managers control the means through which the employees may fulfill their needs. Management can motivate people in two ways: one by

ensuring that the desired behavior will increase their need fulfillment and two by convincing the individuals that the desired action will avoid decrease in need fulfillment.

(iv) Human Dignity. Man is a very sensitive social animal. Therefore, he has to be treated with dignity and respect. Otherwise, a person will be psychologically and emotionally upset and he cannot devote his mind and heart to work as a result productivity will suffer.

There are some apathetic groups in most organizations. These groups reveal little response to environmental changes. Their reaction to the behavior may not produce a perfect cause effect relationship. In such a situation, it would be very difficult for management to formulate a behavioral policy that can effectively satisfy all the members of the organization. There may also be certain ethnic and erratic groups. Their reactions to the environment are often unpredictable. Conservative groups and vested interests may strongly resist managerial initiatives.

Thus, organizational behavior has its own limitations in the context of Indian organizations. However, one cannot rule out the great potentiality of this discipline for increasing managerial effectiveness. According to Keith Davis, "The purpose of studying organizational behavior usually is to improve relationship of people, structure, technology, and the external social system for better human results. Organizational behavior seeks to help people and organizations relate more effectively to each other. It is a human tool for human benefit."

Organizational Climate

The term organizational climate refers to a relatively enduring quality of the internal environment of an organization as perceived and experienced by its members. It is the overall content and quality of the internal working environment, which influences the motivation, morale, and performance of its member It is the totality of various interacting and interrelated internal conditions.

The main characteristics of organizational climate are as follows:

a) Organizational climate is a unique amalgam of physical, social, cultural, and psychological and other conditions within an organization.

b) It evolves over a period of time.

c) It is relatively stable over a prod of time.

d) It distinguishes one organization from other organizations.

e) It influences the attitudes and behavior of members of the organization.

f) It is invisible and abstract though for perceived and experienced by members.

g) Every organization has its own climate.

h) Organizational climate provides certain stimuli and opportunism .At the same time it presents certain constraints and threats. It also provides sources of rewards and punishment.

i) It can be described in terms of certain characteristics or dimensions.

The main dimensions or elements of organizational climate are given below:

1) The values, goals and priorities of the organizations pursued in practice.

2) The policies and practices, rules and regulations of the organization and the consistency with which these are followed.

3) The value system, competence, character, commitment, professionalism, dynamism and life styles of top management.

4) Degree of honesty, integrity, openness, warmth and goodwill of top executives.

5) General organizational structure -in terms of hierarchy, flexibility, clarity, communication said control system, superior subordinate relation, informal social relationship etc.

6) The power structure including dispersal of authority, the extent to which and the manner in which formal authority is exercised, status disparities social distance between managers at various levels, distance between managers at various levels distance between-manager and non managers.

7) Degree of freedom and control in terms of the extent to which behavior of employees is structured, degree of conformity and compliance required organizational norms.

8) Supervisory style consisting of attitudes and behavior of supervisors and managers towards their subordinates and towards performance requirements.

9) Approach of the organization towards conflict and dissent, amicable solution or suppression of conflict.

10) Reward structure in terms of reward levels and interrelations, equity in reward structure, monetary and non-monetary rewards.

11) Nature of jobs in term of degree of skill required, variety in tasks relation between effort and productivity, perceived importance of the Job, relation with other job security, and so on,

12) The physical working conditions in the organization.

Behavioral concepts for Management Control

There is a close relationship between organization behavior and control system, A control system seek to evaluate and regulate the performance of responsibility centers. The manager in charge of a responsible Center is rewarded for good performance. At the same time when the performance of a responsibility center is dismal the manager in charge is punished. Thus, a control system acts as a double-edged sword. That is why manager are afraid of a control system and, may resist it. In order to make a control system successful, it is necessary to understand the factors that motivate, managers to achieve the results. Behavioral sciences have given several concepts-that are relevant to management control. Some of these concepts at described below.

1. **Perception.** Whether a management control system is accepted and implemented successfully does not depend on the system. It depends largely on how the members of the organization view the system. In other words, the viability of a control system depends upon the manager's perception of the surrounding. Perception is the psychological process whereby people select, organize and interpret sensory stimulations into meaningful information about their work environment. Perception is at the base of every individual behavior. People may view the same world differently depending upon their needs, personalities, experience, status, etc. Managers judge a system by, how it is implemented. For example, when a manager gets credit by manipulating performance, other managers may feel that the system is unjust and unfair. Moreover, a control system involves interactions among managers at different

levels of authority. While interacting, the behavior of a manager depends on what he feels the other managers want.

2. **Attitudes and Beliefs.** Managerial behavior largely depends upon the attitudes and beliefs of managers. Attitudes serve as a frame of reference within which facts and events are viewed. A management control system cannot succeed unless ad until managers has positive attitudes towards work. When the attitudes are positive an organization is more likely to achieve, its targets and objectives. When performance is reviewed negative attitudes between superiors and subordinates can distort the accuracy of evaluation. Therefore, the attitudes and beliefs must be just and reasonable. These must not be used to settle scores with anybody.

Attitudes and beliefs are the outcome of learning and experience of managers about their social, religious, cultural and organizational environment. If the managers are optimistic about the capabilities and similarity of subordinates they are likely to design loose controls, But the Control system is likely to be tight if the supervisors are pessimistic.

3. **Motivation.** Motivation is an inspiration making process which impels the members of a team to pull their weight effectively, to give their loyalty to the group, to carry out properly the tasks, that they have accepted and generally to play an effective pact in the jobs that the group has under then. Motivation exercises a significant influence on the behavior of managers and other employees. All human beings behave with reference to their needs and motives. Certain motives induce managers to behave in a positive manner, in his need hierarchy theory of interactions; Abraham Maslow identifies the physiological, security, social, ego and self-actualization needs. These needs motivate managers to perform their jobs provided that jobs performance enables them to satisfy their various needs. Frederick Herzberg has identified motivating and hygiene factors, which are respectively sources of satisfaction and dissatisfaction for managers. Motivators include advancement, development, recognition, achievement, etc. Hygiene factors consist of salary, working conditions, company policy, supervision, etc. Herzberg's model is useful for identifying the factors that motivate managers to achieve the standards of performance laid down in a control system. According to David McClelland, need for achievement is the positive motive to achieve the goal. Achievement motivation involves risk-taking, responsibility for results, use of feedback for improving

performance, etc. To be effective, a management control system must contain the necessary means of motivation for satisfying the needs of managers.

4. **Goal Congruence.** People join organizations to attain their personal goals. These goals include monetary rewards, job security, opportunities for advancement, status, recognition, etc. Similarly, an organization employs people to achieve its own goals, e.g., survival, profits, growth, etc. Both personal goals and organizational goals can be achieved simultaneously through goal congruence. Goal congruence implies integrating the personal goals with organizational goals so as to achieve a balance.

A sound control system monitors the goal congruence in the organization. It should ensure that the decisions and actions taken by employees are not against the interests of the organization. The control system should discourage employees from pursuing their own goals at the cost of the organization. For instance, quality should not be sacrificed for the sake of reducing costs. The control system should also reward and motivate employees when they contribute to organizational goals so that their personal goals are also served.

Thus, goal congruence should be considered while designing and implementing a management control system.

5. **Organizational Conflict and Co-operation.** A management control system can be more effective when there is mutual co-operation between different responsibility centers in the organization. In actual practice, however, conflicts are common. Conflicts are more when there is high degree of interdependence between the responsibility centers or when their functions are highly specialized. When the differences in the goals of various units of the organization. In actual practice, however, conflicts are common. Conflicts are more when there is a high degree of interdependence or the means for achieving the goals are contradictory, organizational conflicts are frequent. For example, the marketing department wants to increase advertising expenditure whereas. The finance department advises to reduce advertising expenditure. The conflict arises because each department tries to optimize its profits. Too management may take several steps, e.g., transfer price to resolve the conflict

Management control system should provide necessary inputs for resolving BehavioralImplicationsof Management Control conflicts and at the same time to create healthy competition among responsibility centers. For

example, a committee of in charges of different responsibility centers may be constituted to maintain co-operation and coordination between them

6. **Leadership-Styles.** Every organization seeks to achieve certain targets. The control process determines the targets and the means for achieving them. The nature of control exercised in an organization to some extent depends upon the management leadership Style. Broadly speaking there are two types of leadership styles, namely autocratic and democratic. An autocratic leader sets the standards without consulting others and assigns the autocratic leader sets the standards without consulting others and assigns the work to each individual unilaterally. He simply tells the people what are to be, the subordinates for failures. On the contrary, a democratic leader sets standards in consultation with his subordinates. He explains the objectives of a task and then allows the people to exercise discretion and judgment. While evaluating performance, he tolerates reasonable mistakes and -suggests measures to avoid failures in future. His approach to control is constructive (a) social systems, and (b) they are formed on the basis of mutual interest. The laws and norms of the society govern the activities and behavior of people in an organization because an organization is a social system. Mutuality of interest is the fundamental factor in every form of human relationship. Organizational behavior is based on the principle of mutuality of interesi6 Individuals will not form a group unless the interests of both the individual as well as the group as a whole are sufficiently served. An individual joins an organization only when he feels that this will serve his interest. The organization also admits him when it feels that he will serve its own interests.

Principles of Organizational Behavior

Keith Davis has identified four theories of organizational behavior reflecting the gradual evolution of modern organizational behavior. The traditional (classical) approach to organizational behavior stressed the development of certain universe principles appropriate to all organizations. This is against the concept of individual differences. Quantitative approach focused on cause-effect relationship among variables affecting decision-making. Organizational behavior has also got a cause-effect relationship, the study of which is helpful in the decision-making process. Systems approach deals with the interrelated and interdependent sub-systems that make the whole system. Organizational behavior is a part of the management system so far as it facilitates organizational behavior. Contingency

approach is closely linked with organizational behavior because both stress the influence of environment on human behavior. Many of the contingency problems of management are behavioral in nature.

The human relations approach viewed organizations, as social systems and stressed the role of interpersonal relations. Human resource approach or supportive approach is concerned with the growth and development of people toward higher levels of competency, creativity and fulfillment. This approach is identical to McGregor's Theory Y. It seeks positive relation between human development and better human behavior. Modern organizational behavioral is characterized by the acceptance, of a human resource model. It takes a more positive view of human beings. It is a sophisticated behavioral science and employs scientific methods in place of trial and error. It is an interpretative science in the pursuit of knowledge. Its basic purpose is to make meaningful the facts of organizational life. Modern organizational behavior is based on an interdisciplinary approach as it integrates knowledge from all the social sciences and other disciplines that can contribute to an understanding of people in organizations.

Applications of Organizational Behavior

The study of organizational behavior is useful in the following ways:

1. Organizational behavior helps an individual manager to develop a mo refined and realistic set of assumptions about people. It helps in predictin human behavior in organizational setting by drawing a clear distinction betweeı individual behavior and group behavior.

2. Organizational behavior explains the causes of human behavior. It indicates which causes of behavior can be controlled and which are beyond control. With such knowledge managers can design better policies and practices to obtain desired behavior from their subordinates.

3. From the administrative view point, organizational behavior helps to improve the people organization relationship in such a way that people are motivated to develop teamwork that effectively fulfills their needs and achieves organizational objectives.

Structured and Unstructured Decision: Implications for Control

Nature of Decision Making: According to Simon* the manager's job consists of recognizing circumstances that require decisions, identifying appropriate actions and finally choosing the moist effective action. Simon has categorized decisions as structured and unstructured (unprogrammed) decisions. Programmed decision is a process, which is in the formula to be adopted by anyone. This demands the least amount of creativity, problem-solving ability and model building need. For example, the reorder point level in inventory management is a programmed decision. When the inventory level falls below the reorder point, the pre-determined or order quantity is used for purchase. For a given level of operation, bank teller deciding to process the cheque presented across the counter is going through the programmed decision.

In the case of non-programmed decision, information availability is low; the need for environmental information is fairly high, is not repetitive and calls for creative intervention by the executive. For example, product mix or production plan is a non-programmed decision. In some organizations promotion may be a programmed decision and in some it may be non-programmed. These two are extreme cases and the most frequently occurring situation is the mixed case of semi-programmed decision. A semi-programmed decision is a situation needing when it is not failing into the expected human intervention pattern.

For example, if there is a condition in the reorder point formula that if the price of the commodity does not exceed a given value, the order quantity is as given. Otherwise, the order quantity will have to be obtained with due consideration to many other factors. Most of the management techniques are developed for the purpose of converting a major part of executive decisions into the programmed category. Thus, most operational decisions fall in the category of programmed decisions and therefore decision-making is highly structured and circumscribed. In these situations, a set of instructions or programme unambiguously defines the action to be taken in all conceivable circumstances. As against this, at the strategic planning level, decisions are unstructured. The task of control is easier in cases of programmed decisions as appropriate operations research models can be formulated for them. As has been indicated earlier, operational controls involve a larger component of programmed decisions.

The Simon framework and the Anthony-Dearden framework are closely interlinked. Strategic planning involves a greater degree of the unstructured component of decision-making, while operational controls involve a high degree of the structured component of decision-making. It may be difficult to put an exact numerical figure that would indicate the extent of structured decision-making involved in strategic planning, management control and operational control. However, an understanding of the Simon framework of programmed and unprogrammed decisions would help in identifying areas in the management control process for which definite procedures can be worked out. The Simon framework coupled with the recent advances in computer technology, forms the basis for designing the decision support systems (DSS). The DSS are systems in relation to key decisions and tasks with a view improving the effectiveness of the manager's problem-solving process. The concept of DSS has basically evolved from two major streams of research and thought. The first stream is the Simon framework of programmable (structured) and non-programmable (unstructured) tasks and the second stream are the technical advances in interactive computer systems. Integrated research in the two streams has lead to decision support as a distinctive concept and methodology for developing computer-based decision aids. The DSS aims at utilizing analytical power and the data processing capabilities of the computer for managerial decisions. It implies the use of computers to assist managers in their decision processes in semi-structured tasks;

2 .Support, rather than replace, managerial judgment;

3.Improve the effectiveness of decision-making rather than its efficiency.

Therefore, the DSS is essentially computer-based support for taking managerial decisions in semi-structured decision situations.

Organization Structure to Control Systems Design

A major factor differentiates the automatic control system from the management control system, is the exercise of control by human beings in the latter case. In automatic control systems, the human element is missing. It is for this reason that an understanding of organization behavior is important for the proper perception of management control systems and processes. Further, as the major focus of the control system is on the performance evaluation of the organizational sub-units, the control system designer should also have an undemanding of the organization structure. Structure refers to the way the enterprise is organised so as to enable the total task of the organization to be

performed in an efficient and effective way. The organizational structure is essentially the arrangement of its sub-systems with authority and responsibility relations. Thus, it refers to whether the organization is centralized or decentralized or whether it emphasizes line or staff or how the 'boxes' are arranged.

In the past, designers of organization structure recommended the following broad guidelines: (i) clear lines of authority running from top to bottom of the Organization. It should be possible to trace a chain of command from chief executive to every employee; (ii) there must be unity of command. No one in the organization should report to more than one boss; (iii) the accountability and authority of each responsible person should be clearly defined avoid overlapping of tasks and authorities; (iv) the responsibility should always be coupled with corresponding authority and the responsibility of the higher authority for the acts of his subordinate is absolute, i.e., a manager may delegate authority. However, he cannot disassociate himself from the acts of his subordinate; (v) the work of every person in the organization should be confined as far as possible to the performance of a single leading functions, thereby permitting specialization in tasks, (vi) line functions should be separated from staff functions. Line functions are essentially those that accomplish the main goal or objectives of the organization such as manufacturing, selling, etc. These are also referred to as operating departments. Staff functions aid in or are auxiliary to line functions. These are generally advisory in nature; (vii) there are limits to the number of persons that can be co-coordinated by a single manager. This limit is known as 'span of control'.

These traditional principles of organizational design could not meet the test of the new organizational forms that had to be designed to meet the complexities of the organizations, which were not necessarily bureaucratic in nature. A contingency theory was evolved to explain some of the complexities. Contingency means it depends. Therefore, the contingency theory aims at analyzing each situation and designing structure taking into consideration task performance and individual group satisfaction, rather than using universal models and fitting them to any situation. There are multifarious relationships between design variables and therefore it is necessary to draw up a task- analysis matrix, indicating tasks and their relationship with design variables, such as objective of the organization, technology, size, people, managerial styles, and so - on. If task profiles are similar or interdependent, such tasks can be combined in

a department or section. Theses tasks should therefore be integrated into an efficient and satisfying whole. One of the most important integrative mechanisms is hierarchy, which is also the most important characteristic of structure. Other techniques for integrating are the drawing up of rules and procedures for the expected behavior, devising of mechanism for handling information, delegating and referring fewer decisions upwards for approval and making planning a culture in the organization.

In. using a contingency approach to design an organization structure rather than transplanting perhaps an outmoded model from a similar institution, the following variables need to be analyzed: (i) objectives, (ii) time orientation,(iii) task differentiation, (iv) people involved, including experience, motives, numbers, (v) market (or external) pressure, (vi) technical system, (vii) managerial style, (viii) ethos and culture of the organization.

Major Forms of Organization Structure

On the basis of analysis of various design variables, organizational structure can be broadly categorized into four major forms: (i) a functional organization, in which the tasks are differentiated on the basis of each major function such as marketing, production, etc., with each manager responsible for the specified function; (ii) a divisional organization in which differentiation is on the basis of a product line or group of product lines with the manager responsible for all the functions related to such a product line or group of product lines, (iii) a matrix organization, in which there is two way differentiation, namely according to functions and according to projects, with both superimposed on each other, (iv) a network structure aimed at closer inter-institutional co-ordination among a network of agencies involved in implementing a programmed or a project.

Functional Structure: In a functional structure, the tasks are differentiated, on the basis of each major function and each manager is responsible for one of these. Thus, there is functional specialization such as marketing, production, finance, personnel, R & D, etc. In such a structure, those with authority can tell others what to do in that function. Such structures have a high degree of centralized decision-making.

Organizations with functional structure can benefit from the economies of scale and also improve the quality of output because the activities of a given function are centralized. One of the major questions in such organizations is

whether one functional manager has staff or a functional authority in relation to other functions, e.g., can the head of marketing tell the head of production what to produce (functional) or can he play only an advisory role (staff) In such organizations, therefore, the top management must plan and co-ordinate the activities of the various functions and resolve conflicts between various functions. In such organizations, since profits are the result of joint efforts, it is difficult to identify the responsibility for profits to individual managers. Further, except for the chief executive, others do not have an overall perspective of the enterprise, and managers tend to have a functional bias.

Divisional Structure: In case of divisional structure, the divisional manager is responsible for all or almost all the functions related to a product line or group of product lines.

Matrix Structure: In matrix structure, task forces are created to solve a problem. There is a basic permanent organization structure: super imposed on it is another structure in which the focus is a project.

Network/Coupling Structure: The network of the organization is used to implement large national development programmes. In such cases,

A national programme agency works in co-ordination with a network of organizations or institutions, which jointly provide the components of the programme service. The network concept permits a high degree of decentralization, which in turn is a response to the existence of extreme environmental complexity.

In the case of network structures, an important aspect of control are how to achieve effective inter agency and inter-institutional co-ordination. Developing appropriate mechanisms for reciprocal interdependence and seeking lateral influences can achieve this. In case of network organizations, the role of authority, as the primary source of power decreases, while sources of lateral influence such as the use of funds, joint planning, political support, mobilization of demand among beneficiaries, and participation of beneficiaries in programme operations, assume greater significance. The coupling structures are structures with inter-locking autonomous but mutually dependent institutions. The three-tier structure in co-operative organizations consisting of an autonomous village co-operative society, an autonomous district- level union and an autonomous state-level federation is an example of such structures. Since mutual interdependence is of a very high order, the viability of each subsystem is

dependent upon the performance of the next level. Further, assignment of profit responsibility assumes greater significance in such organizations. Coordination among various units is achieved through involvement of the chief executives in the management of next level organization through programming committees.

Control Considerations in Choice of Organization Structure

Four different types of organization structures have been identified for managing the tasks of the organization. These are (i) a centralized functional structure, (ii) a decentralized divisional structure, (iii) a hybrid (matrix) structure, and (iv) network/coupling; structure. An important aspect in the design of control systems is that it should be linked with responsibility centers. Because of this intimate linkage between the control system and the organization structure, it becomes important to know about key control considerations in the choice of an organization structure. Important parameters on the basis of which choice of the structure can be decided are (i) efficiency and effectiveness, (ii) economies of scale, (iii) problems of coordination, (iv) assignment of profit responsibility, (v) conflict and cooperation. Since efficiency is related to level of activity, as the level of activity increases efficiency also increases. Size permits the division of labor and specialization within each discipline, which in turn results in increased productivity as a result of better learning of the task to be performed. Therefore, functional structures offer better potential for increasing efficiency. However, the benefits of efficiency are available only up to the optimum size? i.e., the size at which it operates at the minimum cost per output.

Though functional structures offer the advantage of economies once optimum size is surpassed, a subdivision will be called for to a advantage of economies of scale. In practice, it is usually difficult to determine the optimum size for the organization. The assignment of profit responsibility is another important consideration for organization structure design. While the assignment of profit responsibility is difficult in the case of functional organizations, the divisional structure offers the advantage of assignment of a responsibility to the divisional manager. From the control systems point of view, this is an important factor in favor of divisional structure. It may, however, be pointed out that within a division, the departments are organised on functional basis and therefore the control problem within the division is similar to the control problem confronted in functional structures.

The issues related to conflict and cooperation assume importance if is greater interdependence and if it is difficult to assign specific responsibilities for non-achievement of targets. In functional structure, inter- function conflict is likely to be more intense compared to divisional structures, design; divisional structures because it vests total responsibility for the project/programme with the manager whose exclusive task is to plan, coordinate and integrate the activities that cut across several functions. In such structures, functional managers have technical responsibility and are expected to provide all the necessary support to the project/programme managers. As this structure suffers from the weakness of diffused responsibility, it becomes difficult to find the accountability in case of failures to achieve targets. The network/coupling type of structure is more suited when there is need to create autonomous but mutually interlocked organizations such as the three-tier structure of cooperative organizations, in which each tier is an autonomous organization but is interlocked with the next level. These structures are also better suited in those situations where there is need for greater inter-enterprise coordination among various autonomous enterprises working for the same cause.

KEY BEHAVIOURAL CONCEPTS

The control system aims at evaluating the performance of responsibility centers. The manager heading a responsibility center is rewarded on the basis of performance evaluation of his department. This reward could be monetary or an enhancement of status or appreciation of work. He may also be punished if he fails to achieve the target. This could be in the form of stoppage of normal increments, delayed promotion, or general rebuke: Thus, control systems operate as double-edged swords. This is particularly true in situations where the linkages among various responsibility centers are high and one responsibility center may get the reward at the cost of another. No doubt a large number, of managers dread the formal control system and resist the introduction of such systems. Since the control process is primarily behavioral in nature, designer of (he control system should have an understanding of how managers would react to formal systems. Since there is an intimate link between organization behavior and the control systems, it is essential to know what motivates managers to achieve the results and what organizational processes lead to better goal congruence between the individual and the organization. The field of behavioral science deals with such questions in detail. Here, we will restrict ourselves to key behavioral concepts that have relevance for control systems. These are (i)

perception, (ii) attitudes and beliefs, (iii) motivation, (iv) goal congruence, (v) inter unit conflict and cooperation, (vi) managerial styles, (vii) resistance to change (viii) force, field analysis, (ix) entrapment,(x) compromising and sacrificing and(xi)socio-cultural influences.

Perception

The control process involves interactions among various levels of management. In such interactions, the perception of what the other party wants in an Important factor in determining the achievements. This is because it may not be possible to specify the actions in advance with absolute clarity. Further, managers, in informal discussions, may get a different impression about the seriousness of senior management for achievement/non achievement of results. They may also perceive the control system as being unjust and unfair, particularly, if some colleagues get rewards on the basis of manipulation of performance or through credit snatching. Thus, the success of the control system will depend upon the perception of managers in terms of what is expected of them. Since the organizations have two dimensions namely formal and informal, distortion in communication can take place at various levels. The existence of informal organizations, which is reality, may lead to not so desirable perceptions.

Attitudes and Beliefs

Attitudes and beliefs are important determinants of managerial behavior. The attitudes and beliefs are the results of manager's learning and experiences in his social, religious, cultural and organizational settings. In the context of management control, attitudes acquire importance because the achievement of targets to some extent depends upon a positive attitude towards work. As attitudes serve as a frame of reference, they provide a benchmark against which facts and events are viewed. If, in a review meeting, person in charge of a particular responsibility center gets snubbed without reason, and if this has happened in an earlier meeting, his actions in future meetings may be influenced by these experiences and by a belief that his superior wants to settle scores with him.

Motivation

Providing appropriate stimuli can influence the managerial behavior. Since human beings behave as they do because of certain needs and motives, it is

necessary to know about the various types of motives that propel managers to act in a certain way. In order to direct managerial behavior towards attainment of overall goals of organizations, the top management has to provide the necessary motivating stimuli. Maslow's model of needs hierarchy indicates the various needs such as physiological, safety, love, ego and self-actualization. In order to motivate managers positively these needs have to be taken care of. Herzberg proposed the two-factor model. According to him, there are two sets of factors, namely factors that may prevent dissatisfaction (hygiene factors) and factors that may provide satisfaction (motivators). Hygiene factors include salary, working conditions, company policy, supervision and work group, and motivators include advancement, development, responsibility, recognition, achievement, and the work itself this framework is useful in understanding what motivates managers in achieving the targets. Me Clelland identified the need for achievement as a significant need. The other needs include need for power and need for extension. Achievement motivation is characterized by calculated risk taking, personal responsibility for success and failure, use of feedback for improving performance. Power motivation is characterized by an urge to make an impact, to influence and to control other person, situations and events. Extension motivation is characterized by concern for others, to be of service to the community and society at large. The management control process should provide the necessary opportunities to managers to get these needs satisfied.

Incentives - Individuals are influenced both by positive incentives and negative incentives. A positive incentive, also called a reward or a reinforce moat, in the satisfaction of a need, or the expectation that a need will be satisfied. A negative Incentive, also called a punishment, is the deprivation of satisfaction of a need, or the few of such deprivation. Most of the research studies on human Incentives use students as subjects, and those few studies conducted in a business environment tend to focus on sales persons, production workers, clerical employees, and other non managers. There are obvious difficulties in conducting controlled experiments with managers as subjects. Despite the paucity of research evidence, there seems to be support for the following generalizations:

Individuals are more motivated by positive incentives than by negative incentives.

Monetary compensation is an important incentive, but beyond the subsistence level the amount of compensation is not necessarily as important as

non-monetary rewards. Nevertheless, the amount of person's earnings is often important indirectly as an indication of how his achievement and ability are regarded. (a person earning Rs. 50,000 a year may be disgruntled if a colleague whom he perceives to have only equal ability earns Rs. 51,000 a year).

The effectiveness of incentives diminishes rapidly as time elapses between an action and the reward or punishment administered for it. This is why it is important that reports on performance be made available and acted on quickly. Management control cannot wait for the annual financial statements that appear three months or so after the year has ended.

Needs may be unconscious, or they may be expressed as aspirations or objectives. Motivation is weakest when the person perceives an objective as being either unattainable or too easily attainable. Motivation is strong when the objective can be attained with some effort and when the individual regards its attainment as important in relation to his needs.

The incentive provided by a budget or other statement of objective is strongest when the manager participates actively in the process of arriving at the budgeted amounts.

A person who perceives his work as being worthwhile or important is more highly motivated than one who does not.

A person needs to know, on some fairly regular basis, whether his superior as being satisfactory regards the results of his efforts.

Objectives are likely to provide strong incentives only if the manager perceives these objectives to be fair.

Objectives are likely to provide strong incentives only if managers feel committed to attaining them. The commitment is strongest when it is a matter of public record, that is, when the manager has explicitly agreed to the objective.

Managers tend to accept reports of performance more willingly and to use them more constructively when the reports are presented to them in a manner that they regard as objective; that is, without personal bias.

Persons are receptive to learning better ways of doing things only when they personally recognize the inadequacies of their present behavior.

Beyond a certain point, pressure for improved performance accomplishes nothing. This optimum point is far below the maximum amount of pressure that conceivably could be exerted.

Individuals differ in their needs and in their reactions to incentives of various types. An important function of the manager at each level is to adapt his application of the management control system to the personalities and attitudes of the individuals whom he supervises. Thus an impersonal system can never be substitute for interpersonal actions; rather, the system is a framework that should be adapted by the manager to fit individual situations.

Compensation: In many companies managers are compensated in part by a salary and in part by a bonus that is based on performance. This bonus can be a powerful incentive. The bonus and the method of arriving at it can take any of several forms, and the direction and strength of motivation is greatly affected by the particular forms that are selected.

The basis for the bonus can be entirely objective, entirely subjective, or anywhere in between. An objective bonus is one that is based strictly on a formula, such as the calculated profitability of a division. The measure of profitability can be for the individual division, for the company as a whole, or for the combination of the two. The time span for the bonus calculation can be single year, or a period of two, three, or four years.

A bonus system which is primarily objective, which focuses on a division's profitability, and which has a short time span is appropriate when the division manager has a considerable degree of autonomy, when cooperation with other divisions is relatively unimportant, and when the division manager is unlikely to take short-run actions that hurt long-run profitability. By contrast, a bonus system which is based primarily on top management's subjective appraisal, which focuses on the profitability of the company as a whole, and which may cover # period of several years, is appropriate when top management exerts a direct Influence on decisions that affect the divisions, when divisions must cooperate with one another, when the short-run profitability of a division cannot be measured with reasonable accuracy, and when a long-run view is encouraged. Many permutations of these sets of characteristics are obviously possible and lead to a wide variety of bonus plans.

Alternatives also exist for the form of bonus payment. It may be paid in cash or in stock options, and in either case the payment may be made

immediately, or it may be deferred for a number of years. These payment options also affect the motivation that the bonus provides. Clearly, the power of the bonus and the existence of such a variety of alternatives suggest that it is worthwhile to devote much study and thought to devising a bonus plan which will provide the optimum motivation.

Goal congruence

Each individual has his personal goals. He joins an organization to achieve then goals. The personal goal may just be to get a job that assures safety and monetary rewards. The organization, through its top management, sets for itself pals that are desired to achieve. At times there is a conflict between individual pals and organizational goals. Such conflict is more clearly evident in nonprofit organizations such as research and development institutions, and educational institutions. Top management wants these organizational goals to be attained, but other participants have their own personal goals that they want to achieve. These personal goals are the satisfaction of their needs. In other words, participants act in their own self- interest. Here individuals may grow bigger than the organization and this may lead to goal conflict. The control system should be designed so as to integrate the personal goals with organizational goals, and thereby achieve goal congruence. As managers tend to take action according to their perceived self-interest, the control system should ensure that these actions are also in the interest of the organization. Thus, the system should discourage individuals acting against the interests of the organization, e.g., a cost reduction should not be achieved at the cost of quality if the organization has concern for quality products.

In the language of social psychology, the management control system, should encourage goal congruence; that is, it should be structured so that the' goals of participants, so far as is feasible, are consistent with the goals of the organization as a whole. If this situation exists, a decision that a manager regards as being good from his own viewpoint will also be good decision for the organization as a whole. As Mc Gregor states:

The essential task of management is to arrange organizational conditions and methods of operations so that people can achieve their own goals best by directing their own efforts towards organizational objectives!

Perfect congruence between individual goals and organizational goals does not exist. One obvious reason is that individual participants want as much

salary as they can get, whereas from the view point of the organization, there is an upper limit to salaries, beyond which profits will be adversely affected. As a minimum, however, the system should not encourage the individual to act against the best interests of the company. For example, if the management control system signals that the emphasis should be only on reducing costs, and if a manager responds by reducing costs at the expense of adequate quality or if he responds by reducing costs in his own responsibility center by measures that cause a more than offsetting increase in costs in some other responsibility center, he has been motivated, but in the wrong direction. It is therefore important to ask two separate questions about any practice used in a management control system:

What action does it motivate people to take in their own perceived self interest, and

Is this action in the best interests of the company?

There is a close link between motivation and goal congruence. As motivation involves desire for a selected goal and the drive or pursuit towards the goal, it has two aspects, namely congruence and effort. The achievement of goal congruence may also be affected by the degree of freedom to make decisions, i.e., autonomy given to the managers. Therefore, while designing a control system, the three important aspects related to goal congruence, managerial effort and autonomy should be given due consideration, with a view to motivating managers to achieve organizational goals.

Inter-unit Conflict and Cooperation

The conflict and cooperation are fundamental to all living systems. We observe the predator prey relationships and other similar situations in fife. This phenomenon is also observed in the context of organizations. Conflicts are inherent among various responsibility centers because of their conflicting goals, e,g goals, the marketing department may like to keep as much inventory as is possible while the finance manager may insist on reduction of inventory. The conflict between two mutually interdependent divisions is generally evident, because each is trying to optimize its profits. The top management through appropriate transfer price mechanism resolves this conflict. An important task of senior management is to resolve inter-unit conflicts. The control system as provide necessary inputs for resolving such conflicts. While a certain amount of conflict is desirable for keeping the organization healthy, it should not be allowed to reach unmanageable proportions, as it may lead to dysfunctional consequences. As

conflict arises partly because of competition, the management may like to keep healthy competition within limits. Since collaborative efforts are also required to achieve overall goals, the control system should foster the cooperation among various responsibility centers. This can be achieved through appropriate coordinative mechanisms, such as creation of coordination committees consisting of those in charge of strategic business units. Khandwala has summed up the various aspects related to conflict and cooperation as follows.

The greater the interdependence between organization units, the more specialized their functions and the greater the differences between their personnel in terms of goals, the means for achieving goals and the procedures for resolving agreements, the greater is likely to be conflict between them. The more restrictive, diverse or technologically complex the environment, the more professionally oriented the top management style (including an emphasis on participation and optimization) and the higher the aspirations of the top management with respect to organizational goals, the greater is the variety of coordinative mechanisms employed in the organization.

Organization Climate: As noted above, perceptions about an organization's goals and about decisions that a manager should take to achieve these goals come not only from the formal control system but also through the Informal organization. Both the formal and informal structure combine to create what is called the organizational climate. As defined by Andrews:

The term 'climate' is used to designate the quality of the internal environment which conditions in turn the quality of cooperation, the development of Individuals, the extent of members dedication or commitment to organizational purpose, and the efficiency with which that purpose becomes translated into results. Climate is the atmosphere in which individual's help, judge, reward, constrain and find out about each other. It influences morale-the attitude of the individual toward his work and his environment.

Organizational Climate has important influences on motivation. Since to a certain extent an organization is "the lengthened shadow of an individual", the attitude of the chief executive officer toward control is an important ingredient .of the climate. The nature of the management control process in a given organization is much affected by the "style" of the top management in that organization. Some chief executive officers rely heavily on reports and other formal documents; others prefer conversations and informal contacts. The formal

system must be consistent with top management's preferences. It follows that if a new top management, with a different style, takes over, the system should change correspondingly.

By its very nature, "climate's cannot be described concretely. Some alternative characteristics are as follows

Focus on results versus focus on following the rules.

Individual accomplishment versus being a member of the team.

Initiative and risk taking versus "not rocking the boat".

Individual gains versus enhancement of organizational objectives.

Tough mindedness in dealing with people versus avoidance of unpleasant actions.

The purpose of the management control system is to insure compliance with polices versus the purpose is to obtain results.

The management control system is an aid to managers versus the system should be circumvented or disregarded.

The relative importance of participatory management versus authoritarian management.

Managerial Styles

The management control process involves determination of targets and setting up the standards. This can be done by two diametrically opposite styles viz., the authoritarian (autocratic) and the democratic styles. The authoritarian leader sets the standards without consulting the persons who are expected to achieve them, while a democratic leader ensures that group determines policies, strategies and standards. An autocratic leader unilaterally decides what is to be done and assigns the specific tasks to each individual. Quite often he does not indicate the overall purpose of the activity and just tells the people as to what is to be done. He gives general feedback, which is often punitive, and fires at failures. A democratic leader decides along with the group what is to be done and lets the group decide who is to do what and makes sure that a decision is made. He ensures that everybody understands the overall goals, objectives and plans. He gives specific feedback and uses mistakes as an opportunity for coaching and guidance, and tolerates failures. Although the autocratic and

democratic styles in theory represent two ends of spectrum, however, in reality, the leaders use a mix of both styles. They are autocratically democratic or democratically autocratic, i.e., they are tough as nails for certain values, ideals and ideas, and adopt an open door policy on other issues or vice versa, if ' the clarity on goals and values is not of high order. Thus, managers usually use a mix of theory X and theory Y, and rarely theory X or theory Y.

Force Field Analysis

Kurt Lewin developed the field-force analysis using the field concepts of physics., His field theory is concerned with the dynamics of human motivation. Lewin defines the concepts of 'lifespace' consisting of the person and the psychological environment, and, life space being the union of these two. According to him, there are two dimensions for every situation facing a person, namely what is possible and what is not possible in that situation. Accordingly, there are certain facilitating factors and certain inhibiting factors related to the situation faced by the individual. These may facilitate or retard progress towards particular events such as achievement of targets, effective performance of the tasks assigned to the individuals. The managerial behavior is determined by the relationship between the person and environment as revealed by facilitating (driving forces) and inhibiting factors (restraining forces) that lead to possible rather than impossible events. The driving forces are those that push the existing situation towards the desired goal while restraining forces are those that hinder the movement towards the goals. The equilibrium is attained as a result of these two forces, just as in Newtonian mechanics.

Lewin's framework of force-field analysis is closely interlinked with management control process. During the review meetings for performance appraisal of the responsibility centers, the focus is on identifying the facilitating and inhibiting factors in the achievement or non-achievement of targets. These are then divided into factors that were within the control of the manager of the responsibility center and factors beyond his control. The reasons are analyzed for non-achievement and remedial action plan is drawn up. This process is very close to the force-field approach advocated by Lewin.

Resistance to Change

It has been a common experience that organizations tend to follow the law of inertia. As the introduction of control systems tends to move the organization from one level of equilibrium to a higher level of equilibrium, there

is an inbuilt tendency on the part of the organization to resist. A proper understanding of resistance to change is important for the designer of the control systems.

The inertial resistance, which indicates the resistance to change, depends upon the size and age of the organization, technology, age of managers, etc. We quite often hear about removing the dead wood from the organization in order to infuse new thinking and reduce the resistance to change, so as to make the organization an adaptive organization. An important objective of introducing a formal control system is to reduce inertial resistance and make the organization more effective.

Entrapment

At times, managers are hesitant to backtracker make changes that can be construed as an admission of error. They get entrapped because of their own previous decisions and will spend more time and energy justifying their earlier decisions rather than taking any policy shift. This entrapment can be observed in several organizational conflicts. When negative results occur, managers intensify their efforts by putting more resources than are justifiable in a given situation. The U.S. intervention in Vietnam is an illustration of entrapment. In the context of the organization, it must decide on how much R & D expenditure is needed to build a new or improved product. It should decide on how much advertising is needed A voluntary agency must decide about its representative's withdrawal from the host agency. These represent situations in which managers get entrapped. Entrapment has been more specifically defined as follows.

The term escalation refers to an increase in the perceived or actual size of a conflict. Entrapment is formally defined as a special form of escalation in which parties involved expend more of their time, energy, money or other resources in a conflict than seems appropriate or justifiable according to some external standards!

Compromising and Sacrificing

Herbert Simon's research related to administrative behavior indicated that managers depict a 'satisfying' behavior. According to Simon,

In actual organizational practice, no one attempts to find an optimal solution for the whole problem. Instead, specialized members or units of the organization make various particular decision or groups of decisions within the

whole complex. In making these particular decisions, the specialist units do not solve the problem but find a "satisfactory" solution.

Thus, in real life the managers tend to seek satisfying solutions rather than optimal solutions.

Several times managers tend to seek compromising solution rather than satisfying or optimal solution. While the logic of a situation may demand a particular decision, however, because of pressures and counter pressures, the actual decision taken may be compromising solution. As an illustration of compromising solution we can cite the allocation of portfolios to ministers or allocation of responsibilities in an organization. The ministerial position may not necessarily be given to the most able person but to a person representing a particular pressure group. Compromising is particularly applicable in those dynamic situations where constant readjustments are required to be made because of changes in underlying forces. it may be pointed out that compromising should not be construed in the negative sense.

Another important aspect is 'sacrificing'. The person in charge of one responsibility center may adopt a sacrificing behavior towards other responsibility centers. Such managerial behavior may be observed particularly in those cultures, which inculcate a feeling of sacrificing such as in Japan and India. The sacrificing behavior can be observed in transfer price decisions.

Socio Cultural Influences

A Chief Executive who was assigned the task of turning around a government owned public sector unit, indicated that he derived his inspiration from Rabindranath Tagore and immediately narrated a verse whose translation is as follows: "Who will take the charge of my work, says the setting sun. Hearing this, the world keeps mum, like a picture dumb. One earthen lamp was there, It said: My lord, I shall strive to do the best I can". Another chief executive, in a briefing session to managers, spoke out several verses from poet Thiruvalluvar's work, Thirukkural, which was written a few centuries before Christ. The author happened to be present in the briefing session, and found the verses inspiring and containing lessons of motivation and leadership. The author was told that a lot of South Indian managers derive inspiration from this scripture. Just to illustrate, here is the English translation of two selected verses. "He (the leader) has capacity to tolerate those who speak harsh words and greet them with a smile (Verse 389). "Get information from independent sources and if they are

consistent, accept the information as right" (Verse 586). A businessman highlighted the importance of inaugural ceremony for the newly acquired business premises and indicated that such occasions help in creating an extended family, which is very essential for long-term business growth. One chief executive experimented with Gandhiji's concept of Trusteeship and said that his actions are guided by the principle of sum total good and not the individual good. Another chief executive derived inspiration from the teachings of Lord Buddha and said he attempted to follow the path of Buddha, according to which' the only real victory is one in which no one is vanquished and everyone is victor'. At least some of the Indian managers and businessmen are deeply influenced by the profound teaching of various scriptures of different religions, which have now become part of the Indian cultural heritage. Cultural and religious stimuli, to which every person in the society gets exposed, explicitly or implicitly, influence the organizational culture to some extent. The culture and religion affect our managerial actions through their impact on collective subconscious.

Since the control process involves motivating subordinates to achieve the targets, the meaningful learning's from our scriptures could assist managers in performing their tasks more effectively. As the scriptures shape attitudes and beliefs, their impact on management control process is revealed implicitly or explicitly, in the way managers handle certain situations. If the path of Buddha, in which no one is vanquished and everyone is victor, shapes our attitude then our managerial actions will be determined accordingly. On the other hand if we are trained through the methodology of" win as much as you can', our managerial actions will follow this rule.

BEHAVIOR IN ORGANIZATIONS

Management control systems influence human behavior. Good management control systems influence behavior in a goal congruent manner; that is, they ensure that individual actions taken to achieve personal goals also help to achieve the organization's goals.

We begin this chapter by describing some typical organizational goals. We then expand the concept of goal congruence, describing how it is affected both by informal actions and by formal systems. The formal systems can be divided into two categories: "rules," broadly defined; and systematic methods for planning and for maintaining control.

Different structures are used to implement strategies in various types of organizations; an effective management control system should be designed to fit the particular structure.

In the final section of the chapter, we describe the role of the controller the person responsible for the design and operation of the management control system.

GOALS

Although we often refer to the goals of a corporation, a corporation does not have goals; it is an artificial being with no mind or decision-making ability of its own. Corporate goals are determined by the chief executive officer (CEO) of the corporation, with the advice of other members of senior management; and the board of directors usually ratifies them. In many corporations, the goals originally set by the founder persist for generations. Examples are Henry Ford, Ford Motor Company; Alfred P. Sloan, General Motors Corporation; Walt Disney, Walt Disney Company; George Eastman, Eastman Kodak; and Sam Walton, Wal-Mart.

Profitability

In a business, profitability is usually the most important goal. Profitability is expressed, in the broadest and most conceptually sound sense, by an equation that is the product of two ratios:

$$\frac{\text{Revenues - Expenses}}{\text{Revenues}} * \frac{\text{Revenues}}{\text{Investment}} = \text{Return on investment}$$

In the basic form of this equation, "investment" refers to the shareholders' investment, which consists of proceeds from the issuance of stock, plus retained earnings. One of management's responsibilities is to arrive at the right balance between the two main sources of financing: debt and equity. The shareholders' investment (i.e., equity) is the amount of financing that was not obtained by debt, that is, by borrowing. For many purposes, the source of financing is not relevant; "investment" thus means the total of debt capital and equity capital.

"Profitability" refers to profits in the long run, rather than in the current quarter or year. Many current expenditures (e.g., amounts spent on advertising or research and development) reduce current profits but increase profits over time.

Some CEOs stress only part of the profitability equation. Jack Welch, CEO of General Electric Company, explicitly focused on revenue; he stated that General Electric should not be in any business in which its sales revenues were not the largest or the second largest of any company in that business. This does not imply that Welch neglected the other components of the equation; rather it suggests that in his mind there was a close correlation between market share and return on investment.

Other CEOs, however, emphasize revenues for a different reason: because for them company size is a goal. Such a priority can lead to problems. If expenses are too high, the profit margin will not give shareholders a good return on their investment. Even if the profit margin is satisfactory, the organization may still not earn a good return if the investment is too large.

Some CEOs focus on profit either as a monetary amount or as a percentage of revenue. This focus does not recognize the simple fact that if additional profits are obtained by a greater-than-proportional increase in investment, each dollar of investment has earned less.

Maximizing Shareholder Value

In the 1980s and 1990s the term "shareholder value" appeared frequently in the business literature. This concept is that the appropriate goal for Profit Corporation is to maximize shareholder value. Although the meaning of this term was not always clear, it probably refers to the market price of the corporation's stock. We believe, however, that achieving satisfactory profit is a better way of stating a corporation's goal, for two reasons.'

First, "maximizing" implies that there is a way of finding the maximum amount that a company can earn. This is not the case. In deciding between two courses of action, management usually selects the one it believes will increase profitability the most. But management rarely, if ever, identifies all the possible alternatives and their respective effects on profitability. Furthermore, profit maximization requires that marginal costs and a demand curve be calculated, and managers usually do not know what these are. If maximization were the goal, managers would spend every working hour (and many sleepless nights) thinking about endless alternatives for increasing profitability; life is generally considered to be too short to warrant such an effort.

Second, although optimizing shareholder value may be a major goal, it is by no means the only goal for most organizations. Certainly a business that does not earn a profit at least equal to its cost of capital is not doing its job; unless it does so, it cannot discharge any other responsibilities. But economic performance is not the sole responsibility of a business, nor is shareholder value. Most managers want to behave ethically, and most feel an obligation to other stakeholders in the organization in addition to shareholders.

Example. Henry Ford's operating philosophy was satisfactory profit, not maximum profit. He wrote, "And let me say right here that I do not believe that we should make such an awful profit on our cars. A reasonable profit is right, but not too much. So it has been my policy to force the price of the car down as fast as production would permit, and give the benefits to the users and laborers-with resulting surprisingly enormous benefits to ourselves.

By rejecting the maximization concept, we do not mean to question the validity of certain obvious principles. A course of action that decreases expenses without affecting another element, such as market share, is sound. So is a course of action that increases expenses with a greater-than-proportional increase in revenues, such as expanding the advertising budget. So, too, are actions that increase profit with a less than proportional increase in shareholder investment (or, of course, with no such increase at all), such as purchasing a cost-saving machine. These principles assume, in all cases, that the course of action is ethical and consistent with the corporation's other goals.

Risk

An organization's pursuit of profitability is affected by management's willingness to take risks. The degree of risk-taking varies with the personalities of individual managers. Nevertheless, there is always an upper limit; some organizations explicitly state that management's primary responsibility is to preserve the company's assets, with profitability considered a secondary goal. The Asian financial crisis during 1996-1998 is traceable, in large part, to the fact that banks in Asia's emerging markets made what appeared to be highly profitable loans without paying adequate attention to the level of risk involved.

Multiple Stakeholder Approach

Organizations participate in three markets: the capital market, the product market, and the factor market. A firm raises funds in the capital market, and the

public stockholders are therefore an important constituency. The firm sells its goods and services in the product market, and customers form a key constituency. It competes for resources such as human capital and raw materials in the factor market, and the prime constituencies are the company's employees and suppliers and the various communities in which the resources and the company's operations are located.

The firm has a responsibility to all these multiple stakeholders-shareholders, customers, employees, suppliers, and communities. Ideally, its management control system should identify the goals for each of these groups and develop scorecards to track performance.

Examples. In 1996, the Acer Group, headquartered in Taiwan, was one of the largest computer companies in the world, with annual sales in excess of $7 billioD4 The company subscribed to the multiple stakeholder approach and managed its internal operations to satisfy the needs of several constituencies. To quote Stan Shih the founder and chairman: "The customer is no. 1, the employee is no. 2, the shareholder is no. 3. 1 keeps this message consistent with all my colleagues. I even consider that the company's banks, suppliers and others we do business with are our stakeholders; even society is a stakeholder. I do my best to run the company that way."

Lincoln Electric Company is well known for its philosophy that employee satisfaction was more important than shareholder value. James Lincoln wrote: "The last group to be considered is the stockholders who own stock because they think it will be more profitable than investing more in any other way. The absentee stockholder is not of any value to the customer or to the worker, since he has no knowledge of nor interest in the company other than greater dividends and an advance in the price of his stock."4 Donald F. Hastings, Chairman and Chief Executive Officer, emphasized that this was still the company's philosophy in 1996.

Goal congruence

Senior management wants the organization to attain the organization's goals. But the individual members of the organization have their own personal goals, and they are not necessarily consistent with those of the organization.

The central purpose of a management control system, then, is to ensure (insofar as is feasible) a high level of what is called "goal congruence." In a goal

congruent process, the actions people are led to take in accordance with their perceived self-interest are also in the best interest of the organization. Obviously, in our imperfect world, perfect congruence between individual goals and organizational goals does not exist-if for any other reason than that Individual participants usually want as much compensation as they can get while the organization maintains that salaries can go only so high without ·adversely affecting profits. An adequate control system will at least not encourage individuals to act against the best interests of the organization. For example, if the system em-Phasizes cost reduction and a manager responds by reducing costs at the expense of adequate quality or reduces costs in his or her own unit by imposing a more-than-offsetting increase on another unit, the manager has been motivated, but in the wrong direction.

1. In evaluating any management control practice, the two most important Questions to ask are:

What actions does it motivate people to take in their own self-interest?

2. Are these actions in the best interest of the organization?

Informal Factors That Influence Goal Congruence

Both formal systems and informal processes influence human behavior in organizations; consequently, they affect the degree to which goal congruence can be achieved. This book is primarily concerned with formal control seal systems-strategic plans, budgets, and reports. But it is important for the de signers of formal systems to take into account the informal processes, such as -augmented work ethic, management style, and culture, because in order to implement organization strategies effectively the formal mechanisms must be consistent with the informal ones. Therefore, before discussing the formal system, we will describe the informal forces, both internal and external, that play a key role in achieving goal congruence.

External Factors

External factors are norms of desirable behavior that exist in the society of which the organization is a part. These norms include a set of attitudes, often collectively referred to as the work ethic, which is manifested in employees' loyalty to the organization, their diligence, their spirit, and their pride in doing a good job (rather than just putting in time). Some of these attitudes are local-that is, specific to the city or region in which the organization does its work. In

encouraging companies to locate in their city or state, chambers of commerce and other promotional organizations often claim that their locality has a loyal, diligent work force. Other attitudes and norms are industry specific. The railroad industry, for example, has norm's different from those of the airline industry. Still others are national; some countries, such as Japan and Singapore, have a reputation for excellent work ethics.

Example. Silicon Valley-a stretch of northern California about 30 miles long and 10 miles wide-is one of the major sources of new business creation and wealth in the American economy. Silicon Valley attracts people with certain common characteristics: an entrepreneurial spirit, a zest for hard work, high ambition, and a preference for informal work settings.

Internal Factors

Culture. The most important internal factor is the organization's own culture-the common beliefs, shared values, norms of behavior, and assumptions that are implicitly accepted and explicitly manifested throughout the organization. Cultural norms are extremely important since they explain why two organizations, with identical formal management control systems, may vary in terms of actual control.

Example. Johnson & Johnson (J&J) has a strong corporate culture, as exemplified by the company's credo (see Box 2-1). One cannot fully understand the effect of J&J's formal control systems without considering the influence of their credo on the behavior of its employees. This was demonstrated during the Tylenol crisis in 1982. After taking poisoned Tylenol capsules, seven people died. J&J withdrew all Tylenol capsules from the US market, even though all the poisoned capsules were sold in Chicago, the tampering occurred outside J&J premises, and the individual responsible was not a J&J employee. The company also undertook a massive publicity campaign to inform health professionals and the public of the steps it was taking to prevent such tampering in the future. Altogether, J&J spent over $100 million in response to the Tylenol crisis. Company employees maintain that their actions during the crisis stemmed from their strong belief in the company's credo, which underscores the responsibility of the company to the public regardless of any potentially negative impact on short-term profits.

A company's culture usually exists unchanged for many years. Certain practices become rituals, carried on almost automatically because "this is the

way things are done here." Others are taboo ("we just don't do that here"), although no one may remember why. Organizational culture is also influenced strongly by the personality and policies of the CEO, and by those of lower level managers with respect to the areas they control. If the organization is unionized, the rules and norms accepted by tlre union also have a major influence on the organization's culture. Attempts to change practices almost always meet with resistance, and the larger and more mature the organization, the greater the resistance is.

Management Style. The internal factor that probably has the strongest impact on management control is management style. Usually, subordinates' attitudes reflect what they perceive their superiors' attitudes to be, and their superiors' attitudes ultimately stem from the CEO. (This is another way of saying, "an institution is the lengthened shadow of a man.")

Managers come in all shapes and sizes. Some are charismatic and outgoing; others are less ebullient. Some spend much time looking and talking to people ("management by walking around"); others rely more heavily on written reports.

Example. When Reginald Jones was appointed CEO of General Electric in the early 1970s, the company was a large, multi-industry company that performed fairly well in a number of mature markets. But the company did have its problems: a price-fixing scandal that sent several executives to jail, coupled with GE's sound defeat in, and subsequent retreat from, the mainframe computer business. Jones's management style was well suited to bringing more discipline to the company. Jones was formal, dignified, refined, bright, and both willing and able to delegate enormous amounts of authority. He instituted formal strategy planning and built up one of the first strategic planning units in a major corporation.8

When Jones retired in 1980, the GE Board deliberately selected Jack Welch, a man with a very different management style, to succeed him. Welch was outspoken, impatient, informal, an entrepreneur. These qualities were well suited to the growth era of the 80s and the 90s. Actions taken by Welch between 1981 and 1999-mega-acquisitions, a shift from manufacturing to services, rapid globalization into Europe and Asia, the implementation of concepts such as workout and six sigma quality, integration of the Internet into all of GE's businesses-put General Electric on a solid growth trajectory.9 During that period, GE's sales increased four-fold, from $27 billion in 1981 to $101 billion in 1998,

and profits increased six-fold, from $1.6 billion in 1981 to $9.2 billion in 1998. GE's stock price raised by 3,100 percent from $4.20 in March 1981 to $133.75 by November 1999-triple the S&P 500's increase during the same period.

The Informal Organization. The lines on an organization chart depict the formal relationships-that is, the official authority and responsibilities of each manager. The chart may show, for example, that the production manager of Division A reports to the general manager of Division A. But in the course of fulfilling his or her responsibilities, the production manager of Division A actually communicates with many other people in the organization as well with other managers, support units, the headquarters staff, and people who are simply friends and acquaintances. In extreme situations, the production manager, with all these other communication sources available, may not pay adequate attention to messages received from the general manager; this is especially likely to occur when the production manager is evaluated on production efficiency rather than on overall performance. The realities of the management control process cannot be understood without, recognizing the importance of the relationships that constitute the informal organization.

Perception and Communication. In working toward the goals of the organization, operating managers must know what these goals are and what actions they are supposed to take in order to achieve them. They receive this information through various channels, both formal (e.g., budgets and other official documents) and informal (e.g., conversations). Despite this range of channels, it is not always clear what senior management wants done. An organization is a complicated entity, and the actions that should be taken by any one part to further the common goals cannot be stated with absolute clarity even in the best of circumstances.

Moreover, the messages received from different sources may conflict with one another, or be subject to differing interpretations. For example, the budget mechanism may convey the impression that managers are supposed to aim for the highest profits possible in a given year, whereas senior management does not actually want them to skimp on maintenance or employee training since such actions, although increasing current profits, might reduce future profitability. The information operating managers receive as to what they are supposed to do is vastly less clear than the information the furnace receives from the thermostat in the simple system described in Chapter 1.

The Formal control system: The informal factors discussed above have a major influence on the effectiveness of an organization's management control. The other major influence is the formal systems. These systems can be classified into two types: (1) the management control system itself, which is the central subject of this book; and (2) rules, which are described in this section.

Rules

We use the word rules as shorthand for all types of formal instructions and controls, including: standing instructions, job descriptions, standard operating procedures, manuals, and ethical guidelines. Rules range from the most trivial (e.g., paper clips will be issued only on the basis of a signed requisition) to the most important (e.g., capital expenditures of over $5 million must be approved by the board of directors).10 Unlike the directives implicit in budget numbers, which may change from month to month, most rules are in force indefinitely; that is, they exist until they are modified, which happens infrequently,

Some rules are guides; that is, organization members are permitted, and indeed expected, to depart from them, either under specified circumstances or when their own best judgment indicates that a departure would be in the best interests of the organization. For example, even though a rule specifies the criteria for extending credit to customers, the credit manager may approve credit for a customer who does not currently meet these criteria, but who has been valuable to the company in the past and is likely to become so again. Such departures may require the approval of higher authority, however.

Some rules are positive requirements that certain actions be taken (e.g., fire drills at prescribed intervals). Others are prohibitions against unethical, illegal, or other undesirable actions. Finally, there are rules that should never be broken under any circumstances: a rule prohibiting the payment of bribes, for example, or a rule that airline pilots must never take off without permission from the air traffic controller.

Some specific types of rules are listed below.

Physical Controls. Security guards, locked storerooms, vaults, computer passwords, television surveillance, and other physical controls may be part of the control structure.

Manuals. Much judgment is involved in deciding which rules should be written into a manual, which should be considered to be guidelines rather than fiats, how much discretion should be allowed, and a host of other considerations. Manuals in bureaucratic organizations are more detailed than are those in other organizations; large organizations have more manuals and rules than small ones; centralized organizations have more than decentralized ones; and organizations with geographically dispersed units performing similar functions (such as fast-food restaurant chains) have more than do single-site organizations.

With the passage of time, some rules become outdated. Manuals and other sets of rules should therefore be reexamined periodically to ensure that they are still consistent with the wishes of current senior management.

Under the pressure of day-to-day activities, this need is often overlooked; in this case, the manuals are likely to include rules for situations that no longer exist and practices that are obsolete. Permitting such rules to remain undercuts the perceived validity of the manual as a whole.

System Safeguards. Various safeguards are built into the information processing system to ensure that the information flowing through the system is accurate, and to prevent (or at least minimize) fraud of every sort. These include: cross-checking totals with details; requiring signatures and other evidence that a transaction has been authorized; separating duties; counting cash and other portable assets frequently; and a number of other procedures described in texts on auditing. They also include checks of the system performed by internal and external auditors.

Task Control Systems we defined task control as the process of assuring that specific tasks are carried out efficiently and effectively. Many of these tasks are controlled by rules. If a task is automated, the automated system itself provides the control. Task control systems are beyond the scope of this book.

Formal Control Process

A strategic plan implements the organization's goals and strategies. All available information is used in making this plan. The strategic plan is converted to an annual budget that focuses on the planned revenues and expenses for individual responsibility centers. Responsibility centers are also guided by rules and other formal information. They carry out the operations assigned to them, and their outcomes are measured and reported. Actual results are compared with

those in the budget to determine whether performance was satisfactory. If it was, the responsibility center receives feedback in the form of praise or other reward. If it was not, the feedback leads to corrective action in the responsibility center and possible revision of the plan.

Types of Organization

A firm's strategy has a major influence on its structure. The type of structure, in turn, influences the design of the organization's management control systems. Although organizations come in all sizes and shapes, their structures can be grouped into three general categories.

Functional Organization

There are several disadvantages to a functional structure. First, in a functional organization there is no unambiguous way of determining the effectiveness of the separate functional managers (e.g., the managers of marketing and of production) because each function contributes jointly to the organization's final output. Therefore, there is no way of measuring what fraction of profit each contributed. Similarly at lower levels in the organization there is no way of determining how much of the profit was earned respectively by the several production departments, the product engineering department, and the sales office.

Second, if the organization consists of managers in one function who report to higher-level managers in the same function, who, in turn, report to still higher-level managers in that function, then a dispute between managers of different functions can be resolved only at the top, even though it may have originated at a much lower organizational level. For example, the marketing department may want to satisfy a customer's need for a certain quantity of product even if it requires overtime work by the manufacturing department the cost of which the manufacturing department may be unwilling to incur. Theoretically, such a dispute would have to be settled at headquarters, even though it may involve just a single branch sales office and one small department of a single manufacturing plant. Taking the issue up through several levels in the organization and then communicating the decision down to the level where it originated can be time consuming and frustrating.

Third, functional structures are inadequate for a firm with diversified products and markets.

Example. In 1999, Deere & Co. was organized into four business units: Agricultural Equipment (tractors, combines, harvesters, etc., targeted at farmers); Construction Equipment (bulldozers, backhoes, excavators, etc., targeted at building contractors); Consumer Equipment (lawnmowers, snow blowers, etc., targeted individual homes); and Credit (a unit that provided financing for equipment p chase). Given the diversity of products and customer segments that the comp served, Deere & Co. could not adopt a functional structure.

Finally, functional organizations tend to create "silos" for each function thereby preventing cross-functional coordination in areas such as new product development. Supplementing the vertical functional structure with lateral cross-functional processes such as cross-functional job rotation and team-based rewards can mitigate this problem.

Examples. At the Boeing Company, there was a time when design engineered worked independently of the production and operations people who actually built the plane. "Here it is," the designers would say. "Now, go build it." As a result, Boeing's production people were given overly costly, hard-to-build designs. Boeing broke down these functional hierarchies by creating "design-build teams," company of members from all the different functions (the 777 project used these design-b teams exclusively). Under this "teaming" approach, production employees talked directly with engineering, resulting in an innovative and efficiently built product that rapidly became the industry standard.

Glaxo Wellcome, the world's largest seller of pharmaceuticals, felt that its scientists were lacking in business sense. As a result, it changed from a functional hierarchical structure to a structure of "therapeutic strategy teams" consisting of both scientists and business managers, in an effort to bring the two sides of its operation closer together.

Business Units

The business unit form of organization is designed to solve problems inherent in the functional structure. A business unit, also called a division, is responsible for all the functions involved in producing and marketing a specified product line. Business unit managers act almost as if their units were separate companies. They are responsible for planning and coordinating the work of the separate functions-ensuring, for example, that the plans of the marketing

department are consistent with production capabilities-and for resolving the disputes that arise between these functions. Their performance is measured by the profitability of the business unit. This is a valid criterion because profit reflects the activities of both marketing and production.

Example. Nabisco's business units used different distribution systems for different products. For example, its biscuit unit used its own trucks and salespeople to deliver directly to retailers' shelves a costly approach, but one that management believed was justified in terms of improved customer relations and closer control over store inventory and sales.

Although business unit managers exercise broad authority over their units, headquarters reserves certain key prerogatives. At a minimum, headquarters is responsible for obtaining funds for the company as a whole, and for allocating these funds to the various business units in accordance with its determination as to best use. Headquarters also approves budgets and judges the performance of business unit managers, sets their compensation, and, if the situation warrants, removes them. Finally, headquarters establishes the "charter" of each business unit-that is, the product lines it is permitted to make and sell and/or the geographical territory in which it can operate, and, occasionally, the customers to which it may sell.

Headquarters also establishes company wide policies, which, depending on the wishes of the CEO, may be few and general, or may be codified in several thick volumes of manuals. Headquarters staff offices may assist the business units in production and marketing activities and in specialized areas such as human resources, legal affairs, public relations, and controller and treasury matters. These headquarters functions are crucial; without them, the business units would be better off as separate companies.

An advantage of the business unit form of organization is that it provides a training ground in general management. The business unit manager should demonstrate the same entrepreneurial spirit that characterizes the CEO of an independent company.

Another advantage of this type of structure is that because the business unit is closer to the market for its products than headquarters is, its manager may make sounder production and marketing decisions than headquarters might, and the unit as a whole can react to new threats or opportunities more quickly.

Offsetting these advantages is the possibility that each business unit staff may duplicate some work that in a functional organization is done at headquarters. The business unit manager is presumably a generalist, but his or her subordinates are functional specialists, and they must deal with many of the same problems addressed by specialists both at headquarters and in other business units as well. In some cases, the layers of business unit staff may cost more than the value gained by divisionalization. Moreover, skilled specialists in certain functions are in short supply, and individual business units may be unable to attract qualified people. Supplementing the business unit organization with certain centralized functional expertise could mitigate these problems.

Example. At Boeing's commercial aircraft group A the design and manufacture of planes was divided into product lines with narrow bodies (the 737 and the 757) and wide bodies (the 747, the 767, and the 777). However, the fabrication of major structural components required very large and expensive computer-controlled machine tools that were deemed too expensive to duplicate in each product line. Instead, a central fabrication unit was created and all manufacturing activities requiring scale and skill were placed within it and shared across product lines. This structure wags a hybrid of products and functions.

Another disadvantage of the business unit form is that the disputes between functional specialists in a functional organization may be replaced by disputes between business units in a business unit organization. These may involve one business unit infringing upon the charter of another. There may also be disputes between business unit personnel and headquarters staff.

Implications for System Design

If ease of control were the only criterion, companies would be organized into business units whenever feasible. This is because in a business unit organization, each unit manager is held responsible for the profitability of the unit's product line, and presumably plans, coordinates, and controls the elements affecting that profitability. Control is not the only criterion, however. A functional organization may be more efficient because larger functional units provide the benefits of economies of scale. Also, a business unit organization requires a somewhat broader type of manager than the specialist who manages a specific function, and competent general managers of this type may be difficult to find.

Because of the apparently clear-cut nature of profit responsibility in a business unit organization, designers of management control systems sometimes recommend such an organization without giving appropriate weight to the other considerations involved. This is a mistake; the systems designer must always fit the system to the organization rather than the other way around. In other words, although the control implications of various organization structures should be reviewed with senior management, once management has decided that a given structure is best, all things considered, then the system designer must take that structure as given. Enthusiasts for one control technique or another may overlook this essential point.

The point also is important in other contexts. For example, many advertising agencies follow the practice of shifting account supervisors from one account to another at fairly frequent intervals to gain a fresh take on promoting the clients' products. This practice increases the difficulty of measuring the performance of an account supervisor because the fruits of an advertising campaign may take a long time to ripen. Nevertheless, the systems designer should not insist that the rotation policy be abandoned simply to make performance measurement easier. The system does not exist to serve the system designer; rather, the reverse is true.

Functions of the Controller

We shall refer to the person who is responsible for designing and operating the management control system as the controller. Actually, in many organizations, the title of this person is chief financial officer (CFO).

The controller usually performs the following functions:

Designing and operating information and control systems.

- Preparing financial statements and financial reports (including tax returns) for shareholders and other external parties.
- Preparing and analyzing performance reports, interpreting these, reports for managers, and analyzing program and budget proposals from various segments of the company and consolidating them into an overall annual budget.

- Supervising internal audit and accounting control procedures to ensure the validity of information, establishing adequate safeguards against theft and fraud, and performing operational audits.
- Developing personnel in the controller organization and participating in the education of management personnel in matters relating to the

Controller function

Prior to the advent of computers, the controller (or CFO) was usually responsible for processing the information required by the management control system. Currently, companies typically have a chief information officer (CIO) who carries out this responsibility. In some companies, the CIO reports to the chief financial officer; in others, the CIO reports directly to senior management.

Relation to Line Organization

The controllership function is a staff function. Although the controller is usually responsible for the design and operation of the systems, which collect and report information, the use of this information is the responsibility of line management. The controller may be responsible for developing and analyzing control measurements and for recommending actions to management. Other possible charges may include monitoring adherence to the spending limitations laid down by the chief executive, controlling the integrity of the accounting system, and safeguarding company assets from theft and 6aud.

As stated above, however, the controller does not make or -enforce management decisions. The responsibility for actually exercising control runs from the CEO down through the line organization.

The controller does make some decisions, however-primarily those that implement policies decided on by line management. For example, a member of the controller organization often decides on the propriety of expenses listed oxy a travel voucher since most line managers prefer not to get involved in discussions about the cost of meals or why the traveler felt it necessary to fly first class rather than economy class.

Controllers also play an important role in the preparation of strategic plans and budgets. And they are often asked to scrutinize performance reports to ensure accuracy, and to call line managers' attention to items deserving further inquiry. In this capacity, controllers are acting somewhat like line managers

themselves. The difference is that the line manager to whom the subordinate manager is responsible can overrule their decisions.

The Business Unit Controller

Business unit controllers inevitably have divided loyalty. On the one hand, they owe some allegiance to the corporate controller, who is presumably responsible for the overall operation of the control system. On the other hand, they also owe allegiance to the managers of their own units, for whom they provide staff Assistance. In some companies, the business unit controller reports to the business unit manager, and has what is called a dotted line relationship with the corporate controller. Here, the business unit general manager is the controller's immediate boss, and has ultimate authority in the hiring, training, transferal, compensation, promotion, and firing of controllers within that business unit. These decisions are rarely made, however, without input from the corporate controller. Example. General Electric Company used this approach. Bernard Doyle of General Electric: "Our controllership structure is based on a strong functional reporting line. The business unit controllers report directly to the general managers of their business units, but they have a functional or 'dotted line' responsibility to the chief financial officer of the company. The glue that holds it together is that the people in those business unit functional jobs can be appointed only from a slate of candidates the corporate chief financial officer first approves, and he has the unqualified right to remove these people. But, as importantly, these people are the chief financial officers of their business units. They are team players.

REVIEW QUESTIONS

1) Explain in brief the key behavioral factors that have relevance to control system.
2) Explain the behavioral implications of management control.
3) How does the managerial style affect the management control process?
4) Write a note on organizational control.
5) Discuss about the various types of organizational control process.
6) Narrate the responsibility of controller in a control department.
7) Explain about the goal congruence.

Unit - 3

Goals and Strategies - Key variables in management control design and their types - Key result areas.

Strategic Planning Management Control And Operational Control

Management panning and control begins with the establishment of the fundamental objectives of the organization, and continues as the process by which necessary resources are provided and employed effectively and efficiently toward achievement of the goals. A management planning and control system provides the comprehensive framework within which this process is carried out. Such a system encompasses all aspects of an organization's operations, and thus is seen as' a "total" system.

Three Levels of Management: An organization can be looked at in terms of three distinct levels of management, namely, corporate management, divisional management. The corporate management level consists of executives who are responsible for the performance of the organization as a whole. The chairman or managing director and executives in charge of specific functions such as finance, manufacturing, marketing, or personnel constitute the corporate management. Jointly, they are responsible for the overall performance of the organization. The divisional management consists of executives responsible for total performance of particular regions or product divisions. For example, in case of a multi-product company, the divisional managers in charge of production and marketing of products under its division constitute the divisional management. In the case of a large banking company, the total geographical area is divided into regions; each comprising several branches in that geographical area. Regions may be in the charge of regional managers who also constitute divisional management. The operating management consists of executives charged with the management of unit operations/or responsible for the accomplishment of specific operational tasks. A branch manager in charge of a specific branch or a production manager in

Charge of a specific production unit in a product division constitutes the operating management.

Three Levels of Decision-making: The following are the three levels of decision-making:

1) The institutional level for strategic thinking and planning, i.e., those concerned with general company objectives and general problems of the position of the organization in its environment;
2) The managerial level which focuses on gathering, coordinating and allocating resources for the organization, e.g., planning budgets, deciding on capital expenditures, formulating personnel practices;
3) The technical level involving the acquisition and utilization of technical knowledge for operational controls, e.g., inventory controls and production scheduling.

Strategic planning

Strategic planning is the process of deciding on the goals of the organization, on changes in these goals, on the resources used to attain these goals, and on the policies that are to govern the acquisition, use and disposition of these resources.

The word strategy is used here in its usual sense of deciding on how to combine and employ resources. Thus strategic planning is a process having to with the formulation of long-range, strategic, policy-type plans that change the character or direction of the organization. In an industrial company, this includes planning that affects the goals of the company-, policies of all types (including policies as to management control and other processes); the acquisition and disposition of major facilities, divisions, or subsidiaries, the markets to be served and distribution channels for serving them; the organization -structure (as distinguished from individual personnel actions); research and development of new product lines (as distinguished from modifications in existing products and product changes within existing product lines); sources of new permanent capital, dividend policy, and so on. Strategic Planning decisions affect the physical, financial, and organizational framework within which operations are carried on.

Strategic planning is long term planning and is carried on at the top level of management. It is concerned with deciding the goals of the organization. Management, after analyzing its own strengths and weaknesses and on the basis of the threats it faces and the opportunities available to it, directions of the enterprise. Strategic planning has become a crucial exercise for the top management of enterprises because of the greater turbulence in environments in

which such enterprises operate. Decisions to expand or diversify quite often emerge from the exercise of strategic thinking Companies with large turnover and operating in diverse fields usually have a corporate planning department which is involved in the process of evaluating the changes in environment and its implication for the enterprise. It is also involved in the evaluation of new opportunities. Since organization continuously interact with their environment, and since only the top management can take decisions, which have far-reaching, long-term implications on the organization, the top management continuously scans the environment for possible opportunities. 1lius only few individuals are involved in this process. At times, strategic decisions require secrecy and are not communicated till the decisions are actually taken. Most of the data for planning is derived from the external environment, e.g., industry demand, estimates of investments in new facilities and new plants. There is also a high degree of uncertainty associated with the projections made over a long period of time and therefore strategic planning has to recognize this fact.

Management Control.

Management control is the process of evaluating, monitoring and controlling the various sub-units of the organization so that there is effective and efficient allocation and utilization of resources in achieving the predetermine goals. Thus, the focus of management control is on the managers of organizational sub-units and hence its focus is on line managers responsible for the performance of their departments. Management control, therefore, is the control exercised by the management over the managers. Who controls the managers and what is the process involved in controlling them? Management control is exercised by evaluating the performance of cache responsibility center, against planned performance. Planned performance is decided in consultation with the managers of responsibility centers, taking into consideration the activities being managed by them and the resources available to them in terms, of men, materials money etc. Planned performance is usually translated into monetary terms, although physical achievements are also planned for. Managers are not only responsible for the achievement of physical targets, but also for the corresponding monetary values. Thus, management control is generally built around a financial structure. Actual and planned performance are compared at regular intervals so as to identify resource gaps and, if need be, provide managers with more resources or transfer resources from one organizational unit to another. The end-of-the-year review may be too late to take corrective action.

The whole purpose of management control is to decide on corrective action if there are substantial deviations from the planned performance. The management control system also provides mechanisms for proper coordination and integration of various organizational sub-units by interrelating the tasks being performed and deciding on the resource allocation. In the process of management control conflicts are inherent between managers for resource mobilsation, allocation and snatching. Thus, there is intense interaction among managers.

Distinctions between Management Control and Strategic Planning: Briefly, here are some ways in which the strategic planning process differs from the management control process.

A strategic plan usually relates to some part of the organization, rather than to the totality; -the concept of a master planner who constantly keeps all part of the Organization at some coordinated optimum is a nice concept, but an unrealistic one. Life is too complicated for any human, or computer, to do this.

Strategic planning is essentially irregular Problems, opportunities, and bright ideas do not arise according to some set timetable; rather, they are dealt with whenever they happen to be perceived. The appropriate analytical techniques depend on the nature of the problem being analyzed, and no over all approach (such as a mathematical model) has been developed that is of much help in analyzing all types of strategic problems. Indeed, an overemphasis on a systematic approach is quite likely to stifle the essential element of creativity. In strategic planning, management works now on one problem, then on another, according to the needs and opportunities of the moment.

The estimates used in strategic planning are intended to show the expected results of the plan. They are neutral and impersonal. By contrast, the management control process and the data used in it are intended to influence managers to take actions that will lead to desired results. Thus, in connection with management control it is appropriate to discuss how tight an operating budget should be. Should the goals be set? So high that only an outstanding manager can achieve them, or should they be set so that they are attainable by the average manager? At what level does frustration inhibit a manager's best efforts? Does an easily attainable budget lead to complacency? And so on. In strategic planning, the question to be asked about the figures is simple: Is this the most reasonable estimate that can be made?

Strategic planning relies heavily on external information-that is, on data collected from outside the company, such as -market ~analysis, estimates of costs and other factors involved in building a plant in a new locality, technological developments, and so on. When data from the normal information system are used, they usually must be recast to fit the needs of the specified problem being analyzed. For example, current operating costs that are collected for measuring performance and for making pricing and other operating decisions usually must be restructured before they are useful in deciding whether to close down the plant. Another characteristic of the relevant information is that much of it is imprecise. The strategic planner estimates what will probably happen, often over a rather long time period. These estimates are likely to have a high degree of uncertainty, and they must be treated accordingly.

In the management control process, the communication of objectives, policies, guidelines, decisions, and results throughout the Organization is extremely important. In the strategic planning process, communication is much simpler and involves relatively few persons; indeed, the need for secrecy often requires that steps be taken to inhibit communication. Wide communication of the decisions that result from strategic planning is obviously important; this is part of the management control process.

Both management control and strategic planning involve top management, but middle managers (i.e., operating management) typically have a much more important role in management control than in strategic planning. Middle managers usually are not major participants in the strategic planning process and sometimes are not even aware that a plan is being considered. Many operating executives are by temperament not very good at strategic planning. Also, the pressures of current activities usually do not allow them to devote the necessary time to such work. Currently, there is a tendency in companies to set up separate staffs to gather the facts and make the analysis that provide the background material for strategic decisions.

Strategic planning and management control activities tend to conflict with one another in some respects. The time that management spends in thinking about the future is taken from time that could otherwise be used in controlling current operations, so in this indirect way strategic planning can hurt current Performance. And, of course, the reverse also is true.

More directly, many actions that are taken for long-run, strategic reasons make current profits smaller than they otherwise would be. Research and some advertising expenditures are obvious examples. The problem of striking the right balance between strategic and operating considerations is one of the central problems in the whole management process.

Operational Control of Technical Control

Operational control is the process of assuring that out effectively and efficiently. As the definition suggests, the focus of operational control is on individual tasks or transactions: scheduling and controlling individual jobs through a shop, as contrasted with measuring the performance of the shop as a whole; procuring specific items for inventory, as contrasted with the management of inventory as a whole; specific personnel actions, as contrasted with personnel management; and so on. The definition does not suggest another characteristic that applies to most activities that are subject to operational control, namely, that these activities are capable of being programmed.

Distinction Between Management Control and Operational Control: As an example of an activity to which operational control is applicable, consider the Inventory area. If the demand for an item, the cost of storing it, its production cost and production time, and the loss involved in not filling an order are known, then the optimum inventory level and the optimum production or procurement schedule can be calculated. Even if these factors cannot be known with certainty (as, of course, is the case with all future events), sound estimates nevertheless can be made, inventory levels and production or procurement schedules based on these estimates can be calculated, and reasonable men will agree with the results of these calculations. An inventory control system using rules derived from such calculations is an example operational control.

By contrast, consider the le al department of a company. No device can measure the quality, or even the quantity, of the legal service that constitutes the output of this department. No formula can show the amount of service the department should render or the optimum amount of costs that should be incurred. Impressions as to the "right" amount of service, the "right" amount of cost, and the "right" relationship between the service actually rendered and the cost actually incurred are strictly subjective. They are judgments made by management. If persons disagree of these judgments, there is no objective way of resolving the disagreement. Yet the legal department, as a part of the whole

organization, must be controlled; the chief counsel must operate within the framework of policies prescribed by top management. The type of control necessary in this situation is management control.

Examples of activities that are susceptible to operational control are automated plants, such as cement plants, oil refineries, and power generating stations; the direct production operations of most manufacturing plants; production scheduling; inventory control; the order-taking type of selling activity; and order processing, premium billing, payroll accounting, cheque handling, and similar paperwork activities.

Examples of activities for which management control is necessary are the total operation of most manufacturing plants, which includes such judgment inputs as indirect labor, employees' benefit and welfare programmes, safety activities, training, and supervision; most advertising, sales promotion, pricing, selling (as distinguished from order-taking), and similar marketing activities; most aspects of finance; most aspects of research, development, and design; the work of staff units of all types; and, of course, the activities of top management.

The type of control appropriate for the whole of any unit that carries on both programmed and non-programmed types of activities is management control. Thus, the control of one division of a company is management control, even though operational control is appropriate for certain aspects of the work such as posting and cheque writing.

Some people believe that the distinction between the two classes of activities described above is merely one of degree rather than of kind; they say that all we are doing is distinguishing between situations in which control is easy and those in which control is difficult. We think the distinction is more fundamental, and hope this will be apparent from the following brief list of characteristics that distinguish management control from operational control.

Management control covers the whole of an organization. Each operational control procedure is restricted to a subunit, often a narrowly circumscribed activity. Just a management control occurs within a set of policies derived from strategic planning, so operational control occurs within a set of well-defined procedures and rules derived from management control.

Control is more difficult in management control than in operational control because of the absence of a valid, objective standard with which actual

performance can be compared. A good operational control system can provide a much higher degree of assurance that actions are proceeding as desired than can a good management control system.

An operational control system is a rational system; that is, the action to be taken is decided by a set of logical rules. These rules may or may not cover all aspects of a given problem. Situations not covered by the rules are designated as exceptions and are resolved by human judgment. Other than these exceptions, application of the rule is automatic. The rules in principle can be programmed into a computer, and the choice between using a computer and using a human being depends primarily on the relative cost of each resource.

In management control, psychological considerations are dominant. The management control system at most assists those who take action; it does not directly or by itself results in action without human intervention. By contrast, the end product of an inventory control system can be an order, such as a decision to replenish a certain inventory item, and this order may be based entirely on calculations from formulas incorporated in the system. (Human beings devised the formulas, but this is a management control process, not an operational control process).

In a consideration of operational control, analogies with mechanical, electrical, and hydraulic systems are reasonable and useful, and such terms as feedback, network balancing, optimization, and so on are relevant. It is perfectly appropriate, for example, to view an operational control system as analogous to a thermostat which turns the furnace on and off according to its perception of changes in temperature. These analogies do not work well as models for management control systems, however, because the success of these systems is highly dependent on their impact on people, and people are not like thermostats or furnaces; one can't light a fire under a human being simply by turning up a thermostat.

The management control system is ordinarily built around a financial structure, whereas operational control data are often non monetary. They may be expressed in terms of man-hours, number of items, pounds of waste, and so on. Since each operational control procedure is designed for a limited area of application, it is feasible to use the basis of measurement that is most appropriate for that area.

As new techniques are developed, there is a tendency for more and more activities to become susceptible to operational control. In the factory, the production schedule that was formerly set according to the foreman's intuition is now derived by linear programming. And although not very long ago it was believed that operational control was appropriate only for factory operations, we now see models and formulas being used for certain marketing decisions, such as planning salesman's calls and planning direct- mail advertising. This shift probably will continue; it is a large part of what people have in mind when they say, "management is becoming increasingly scientific".

The managers of responsibility centers are concerned with effectively and efficiently managing the tasks allocated to the centers. They exercise operational control, to perform these tasks and activities. Thus, it is concerned with individual tasks or transactions, such as procurement of raw material according to prescribed quantity and quality, scheduling of jobs, selling of products to specific customers, and so on. Most activities that fall in the realm of operational control are subject to being programmed and are repetitive in nature. It is easier to develop quantitative models that would lead to optimal decision-making. Consequently, optimum relationship can be determined between inputs and outputs of specific tasks. In the case of operational controls, it is also easy to rind relationships between the level of activity and the cost incurred. Engineered costs play an important role in operational control.

Thus, operational control is essentially concerned with the control of activities within the department, e.g., the materials manager exercise operational control on the specific activities of his department and is concerned with day-to-day control and follow-up on activities. The data for operational control is concerned with individual events and activities and is reported as the events occur, e.g., data is reported on daily output in the production department. Exactness in data is another essential characteristic number. Further, the data generated is often non-monetary and control is exercised on the basis of physical achievements, e.g., number of units produced by each worker in a shop, so many units sold area wise per week month and so on. It is in the area of operational control that techniques of operations research find wide applications, because the activities are programmable. Mathematical models can be developed and these can prescribe decision rules and hence solutions are obtained from models rather than from the subjective judgment of managers.

Strategic planning

The discussion implicitly assumes a moderately large organization, typically consisting of a headquarters and several decentralized business units. In such an organization, strategic planning takes place both at headquarters and in the business units. If the organization is small, and especially if it does not have business units, the process involves only senior executives and a planning staff. In a very small organization, the process may involve only the chief executive officer.

Nature of strategic planning

Most competent managers spend considerable time thinking about the future. The result may be an informal understanding of the future direction the entity is going to take, or it may be a formal statement of specific plans about how to get there. Such a formal statement of plans is here called a strategic plan, and the process of preparing and revising this statement is called strategic planning (elsewhere called long-range planning and programming). Strategic planning is the process of deciding on the programs that the organization will undertake and on the approximate amount of resources that will be allocated to each program over the next several years.

Relation to Strategy Formulation

We draw a distinction between two management processes-strategy formulations and strategic planning. Because "strategy" or "strategic" is used in both terms, there is a possibility of confusion. The distinction is that strategy formulation is the process of deciding on new strategies, whereas strategic planning is the process of deciding how to implement the strategies. In the strategy formulation process, management arrives at the goals of the organization and creates the main strategies for achieving those goals. The strategic planning process then takes the goals and strategies as given and develops programs that will carry out the strategies and achieve the goals efficiently and effectively, The decision by an industrial goods manufacturer to diversify into consumer goods is a strategy formulation, a strategic decision, after which a number of implementation issues have to be resolved: whether to diversify through acquisition or through organic growth, what product lines to emphasize, whether to make or to buy, which marketing channels to use the document that describes how the strategic decision is to be implemented is the strategic plan.

In practice, there is a considerable amount of overlap between strategy formulation and strategic planning. Studies made during the strategic planning process may indicate the desirability of changing goals or strategies. Conversely, strategy formulation usually includes a preliminary consideration of the programs that will be adopted as a means of achieving the goals. Nevertheless, it is important to keep a conceptual distinction between strategy formulation and strategic planning, one reason being that the planning process tends to become institutionalized, putting a damper on purely creative activities. Segregating strategy formulation as a separate activity, at least in the thinking of top management, can offset this tendency. Strategy formulation should be an activity in which creative, innovative thinking is strongly encouraged.

Strategic planning is systematic; there is an annual strategic planning process, with prescribed procedures and timetables. Strategy formulation is unsystematic. Strategies are reexamined in response to perceived opportunities or threats. Thus, ideally, a possible strategic initiative may surface at any time from anyone in the organization. If judged to be worth pursuing, it should be analyzed immediately, without waiting upon a prescribed timetable. Once a strategy is accepted, the planning for it follows in a systematic way.

In many companies, unfortunately, goals and strategies are not stated explicitly enough or communicated clearly to the managers who need to use them as a framework for their program decisions. Thus, in a formal strategic planning process an important first step often has to be to write descriptions of the organization's goals and strategies. This may be a daunting task, for although top management presumably has an intuitive feel for what the goals and strategies are, they may not be able to verbalize them with the specificity necessary for making good program decisions. Planners may have to interpret or elicit management thinking as a first step.

Evolution of Strategic Planning

Fifty years ago the strategic planning process in most organizations was unsystematic. If management gave thought to long-range planning, it was not in a coordinated way. A few companies started formal strategic planning systems in the late 1950s, but most early efforts were failures; they were minor adaptations of existing budget preparation systems. The required data were much more detailed than was appropriate; staff people rather than line management did most of the work; participants spent more time filling in forms than thinking deeply

about alternatives and selecting the best ones. As time went on, management learned their lessons-the objective should be to make difficult choices among alternative programs, not to extrapolate numbers in budgetary detail; time and effort should go into analysis and informal discussion, relatively less on paperwork; the focus should be on the program itself rather than on the responsibility centers that carried it out.

Currently, many organizations appreciate the advantages of making a plan for the next three to five years. The practice of stating this plan in a formal document, or model, is widely, but by no means universally, accepted. The amount of detail is usually much less than in the strategic plans of the 1950s.

Benefits and Limitations of Strategic Planning

A formal strategic planning process can give to the organization:

(1) a framework for developing the annual budget;

(2) a management development tool;

(3) a mechanism to force managers to think long term; and

(4) a means of aligning managers with the long-term strategies of the company.

Framework for Developing the Budget. An operating budget calls for resource commitments over the coming year; it is essential that management make such resource commitments with a clear idea of where the organization is heading over the next several years. A strategic plan provides that broader framework. Thus, an important benefit of preparing a strategic plan is that it facilitates the formulation of an effective operating budget.

A company without a strategic planning process considers too many strategic issues in the budgeting stage, potentially leading to information overload, inadequate consideration of some strategic alternatives, or neglect of some choices altogether-a dysfunctional environment that can seriously affect the quality of resource allocation decisions. An important benefit of strategic planning is to facilitate optimal resource decisions in support of key strategic options.

Management Development Tool. Formal strategic planning is an excellent management education and training tool that provides managers with a process for thinking about strategies and their implementation. It is not an overstatement

to say that in formal strategic planning, the process itself is a lot more important than the output of the process, which is the plan document

Mechanism for Forcing Management to Think Long Term. Managers tend to worry more about tactical issues and managing the present, day-today affairs of the business than about creating the future. Formal strategic planning forces managers to make time for thinking through important long term issues.

Means of Aligning Managers with Corporate Strategies. The debates, discussions, and negotiations that take place during the planning process clarify corporate strategies, unify and align managers with such strategies, and reveal the implications of corporate strategies for individual managers.

As we will show, program decisions are made one at a time, and the strategic plan brings them all together. Preparing the strategic plan may reveal that individual decisions do not add up to a satisfactory whole. Planned new investments may require more funds in certain years than the company can obtain in those years; planned changes in direct programs may require changes in the size of support programs (e.g., research and development, administrative) that were not taken into account when these changes were considered separately. The profit anticipated from individual programs may not add up to satisfactory profit for the whole organization.

Example. In 1996, Texaco, a large, complex oil and gas producer, had a capital spending and exploration budget of $3.6 billion. Some of its 1996 projects included. Developing offshore projects in the North Sea, Nigeria, Angola, Australia, and Southeast Asia. Continuing to increase production in the neutral zone between Saudi Arabia and Kuwait." With the level of risk associated with the different projects and the amount of resources available, strategic planning was a necessity for Texaco in choosing among projects.

Limitations. There are several potential pitfalls or limitations to formal strategic planning. First, there is always a danger that planning can end up becoming a "form-filling," bureaucratic exercise, devoid of strategic thinking. In order to minimize this risk of bureaucratization, organizations should periodically ask, "Are we getting fresh ideas as a result of the strategic planning process?"

A second danger is that an organization may create a large strategic planning department and delegate the preparation of the strategic plan to that staff department, thus forfeiting the input of line management as well the

educational benefits of the process. Strategic planning is a line management function. The staff in strategic planning departments should be kept to a minimum and their role should be as a catalyst, an educator and a facilitator of the planning process.

Finally, strategic planning is time consuming and expensive. The most significant expense is the time devoted to it by senior management and managers at other levels in the organization. A formal strategic plan is desirable in organizations that have the following characteristics:

1. Top management is convinced that strategic planning is important. Otherwise, strategic planning is likely to be a staff exercise that has little impact on actual decision-making,

2. The organization is relatively large and complex. In small, simple organizations, an informal understanding of the organization's future directions is adequate for making decisions about resource allocations, the principal purpose of preparing a strategic plan.

3. Considerable uncertainty about the future exists, but the organization has the flexibility to adjust to changed circumstances. In a relatively stable organization, a strategic plan is unnecessary; the future is sufficiently like the past, so the strategic plan would be only an exercise in extrapolation. (If a stable organization foresees the need for a change in direction, such as a decline in its markets or drastic changes in the cost of materials, it prepares a contingency plan showing the actions to be taken to meet these new conditions.) On the other hand, if the future is so uncertain that reasonably reliable estimates cannot be made, preparation of a formal strategic plan is a waste of time.

In summary, a formal strategic planning process is not needed in small, relatively stable organizations, and it is not worthwhile in organizations that cannot make reliable estimates about the future or in organizations whose senior management prefers not to manage in this fashion.

Program Structure and Content

In most industrial organizations, programs are products or product families, plus research and development, general and administrative activities, planned acquisitions, or other important activities that do not fit into existing product lines. At Procter & Gamble, for example, each product line is a program. By contrast, General Electric structures its programs by profit centers-that is,

business units; each business unit is responsible for a specified number of product lines.

In service organizations, programs tend to correspond to the types of services rendered by the entity. The federal government divides its activities into 10 main programs. In a multi-unit service organization, such as a hotel chain, each unit or each geographical region may constitute a program.

The typical strategic plan covers a period of five future years. Five years is a long enough period to estimate the consequences of program decisions made currently. The consequences of a decision to develop and market a new product or to acquire a major new capital asset may not be fully felt within a shorter period. The horizon beyond five years may be so murky that attempts to make a program for a longer period are not worthwhile. Many organizations prepare very rough plans that extend beyond five years. In some organizations the strategic plan covers only the next three years.

Organizational Relationships

The strategic planning process involves senior management and the managers of business units or other principal responsibility centers, assisted by their staffs. A primary purpose is to improve the communication between corporate and business unit executives by providing a sequence of scheduled activities through which they can arrive at a mutually agreeable set of objectives and plans. Managers of individual departments usually do not participate in the strategic planning process.

In some organizations, the controller organization prepares the strategic plan; in others, there is a separate planning staff. Strategic planning requires analytical skills and a broad outlook that may not exist in the controller organization; the controller organization may be skilled primarily in the detailed analytical techniques that are required in fine-tuning the annual budget and analyzing variances between actual and budgeted amounts.

Even if there is a separate planning staff, the controller organization usually does the work of disseminating guidelines and assembling the proposed numbers, as we describe in a later section. The numbers in the strategic plan, in the annual budget, and in the accounting system must be consistent with one another, and the best way of assuring this consistency is to assign responsibility

for all three to the same staff. Moreover, some companies include the numbers for all three systems in a single computer model.

Headquarters staff members facilitate the strategic planning process, but they should not intervene too strongly. The best role of staff members is as a catalyst; they ensure that the process is properly carried out, but they do not make the program decisions. In particular, if business unit managers perceive that the headquarters staff is overly influential in the decision-making process, these managers will be reluctant to have the frank discussions with staff that are essential in developing sound plans. (Business unit managers, of course, have their own staffs that presumably are loyal to them.)

Top Management Style. Strategic planning is a management process, and the way in which it is conducted in a given company is heavily dependent on the style of the chief executive officer. Some chief executives prefer to make decisions without the benefit of a formal planning apparatus. If the controller of such a company attempts to introduce a formal system, he or she is likely to be unsuccessful. No system will function effectively unless the chief executive actually uses it; if other managers perceive that the system is not a vital part of the management process, they will give only lip service to it.

In some companies, the chief executive wants some overall plan for the reasons given earlier but by temperament has an aversion to paperwork. In such companies, the system can contain all the elements we describe in a later section, but with minimum detail in the written documents and relatively greater emphasis on informal discussion. In other companies, senior management prefers extensive analysis and documentation of plans, and in these companies the formal part of the system is relatively elaborate.

Designers of the system must correctly diagnose the style of senior management and see to it that the system is appropriate for that style. This is a difficult task because formal strategic planning has become something of a fad, and some managers think they may be viewed as old-fashioned if they do not embrace all its trappings. Thus, they may instruct the staff to install an elaborate system, or permit staff to install one, that they later feel uncomfortable using.

Analyzing Proposed New Programs

Ideas for new programs can originate anywhere in the organization: with the chief executive, with a headquarters planning staff, or in various parts of the

operating organization. For example, in 3M Corporation, the idea for "Post-It" notepads originated down in the organization, not at the initiative of the CEO. Some units are a more likely source of new ideas than others, for obvious reasons. The R&D organization is expected to generate ideas for novel products or processes, the marketing organization for marketing innovations, and the production engineering organization for better equipment and manu facturing methods.

Proposals for programs are essentially either reactive or proactive-they arise either as a reaction to a perceived threat such as rumors of the introduction of a new product by a competitor, or as an initiative to capitalize on an opportunity. Because a company's success depends in part on its ability to find and implement new programs and because ideas for these can come from a wide variety of sources, the atmosphere needs to be such that ideas come to light and receive appropriate management attention. A highly structured, formal system may create the wrong atmosphere for this purpose. The system should be flexible enough and receptive enough so that good new ideas do not get killed off before they come to the attention of the proper decision-maker.

Planners should view the adoption of a new program not as a single all or-nothing decision but rather as a series of decisions, each one a relatively small step in testing and developing the proposed program. They should decide to carry through full implementation and its consequent significant investment only if the tests indicate that the proposal has a good chance of success. Most new programs are not like the Edsel automobile, which committed several hundred million dollars in a single decision; rather, they involve many successive decisions: agreement that the initial idea for a product is worth pursuing, examining its technical feasibility in a laboratory, examining production problems and cost characteristics in a pilot plant, testing consumer acceptance in test markets, and only then making a major commitment to full production and marketing. The system must provide for these successive steps, and for a thorough evaluation of the results of each step as a basis for making the decision on the next step.

Capital Investment Analysis

Most proposals require significant new capital. Techniques for analyzing capital investment proposals attempt to find either (a) the net present value of the project-the excess of the present value of the estimated cash inflows over the

amount of investment required; or (b) the internal rate of return implicit in the relationship between inflows and outflows. An important point is that these techniques are used in only about half the situations in which, conceptually, they are applicable.2 there are at least four reasons for not using present value techniques in analyzing all proposals.

1. The proposal may be so obviously attractive that a calculation of its net present value is unnecessary. A newly developed machine that reduces costs so substantially that it will pay for itself in a year is an example.

2. The estimates involved in the proposal are so uncertain that making present value calculations is believed to be not worth the effort---one can't draw a reliable conclusion from unreliable data. This situation is common when the results are heavily dependent on estimates of sales volume of new products for which no good market data exist. In these situations, the "payback period" criterion is used frequently.

3. The rationale for the proposal is something other than increased profitability. The present value approach assumes that the "objective function" is to increase profits, but many proposed investments win approval on the grounds that they improve employee morale, the company's image, or safety.

4. There is no feasible alternative to adoption. Environmental laws may require investment in a new program, as an example.

The management control system should provide an orderly way of deciding on proposals that cannot be analyzed by quantitative techniques. Systems that attempt to rank non-quantifiable projects in order of profitability won% work; many projects do not fit into a mechanical ranking scheme.

We describe briefly some considerations that are useful in implementing capital expenditure evaluation systems.

Rules. Companies usually publish rules and procedures for the approval of capital expenditure proposals of various magnitudes. Proposed the plant manager, subject to a total specified amount in one year, may approve small expenditures and larger proposals go successively to business unit managers, to the chief executive officer, and, in the case of very important proposals, to the board of directors.

The rules also contain guidelines for preparing proposals and the general criteria for approving proposals. For example, small cost-saving proposals may require a maximum payback period of two (sometimes three) years. For larger proposals, there is usually a minimum required earnings rate, to be used either in net present value or internal rate of return analysis. The required earnings rate may be the same for all proposals, or there may be different rates for projects with different risk characteristics; also, proposals for additional working capital may use a lower rate than proposals for fixed assets.

Avoiding Manipulation. Sponsors who know that their project with a negative net present value is not likely to be approved may nevertheless have a "gut feeling" that the project should be undertaken. In some cases, they may make a proposal attractive by adjusting the original estimates so that the project meets the numerical criteria-perhaps by making optimistic estimates of sales revenues or by reducing allowances for contingencies in some of the cost elements, One of the most difficult tasks of the project analyst is to detect such manipulations. The reputation of project sponsors can provide a safeguard; the analyst may place more reliance on numbers from a sponsor who has an excellent track record. In any event, although all proposals that come up for approval are likely to satisfy the formal criteria for this reason, not all of them are truly attractive.

Models. In addition to the basic capital budgeting model, there are specialized techniques, such as risk analysis, sensitivity analysis, simulation, scenario planning, game theory, option pricing models, contingent claims analysis, and decision tree analysis. Some of them have been oversold, but others are of practical value. The planning staff should be acquainted with them and require their use in situations in which the necessary data are available.

Organization for Analysis

A team may evaluate extremely large and important proposals, and the process may require a year or more. Even for small proposals, considerable discussion usually occurs between the sponsor of the proposal and the headquarters staff. As many as a dozen functional and line executives may sign off on an important proposal before it is submitted to the chief executive officer. The CEO may return the proposals for further analysis several times before making the final decision to go ahead with or reject the project. And as noted

earlier, the decision to proceed may require a succession of development and testing hurdles be crossed before full implementation.

Recent work in the rapidly developing field of expert systems uses computer software in the analysis of proposed programs. The new software permits each participant in the team that is considering a proposal to vote on, and to explicitly rank, each of the criteria used to judge the project. The computer tabulates the results and uncovers inconsistencies or misunderstandings and raises questions about them. A succession of votes on criteria can lead to a conclusion that expresses the consensus of the group.

There is no set timetable for analyzing investment proposals; As soon as people are available they may start analysis. Planners collect approved projects during the year for inclusion in the capital budget. There is a deadline in the sense that the capital budget for next year has a deadline (usually just prior to the beginning of the budget year). If a proposal doesn't make that deadline, its formal approval may wait until the following year, unless there are unusual circumstances. The capital budget contains the authorized capital expenditures for the budget year, and, if additional amounts are approved, cash plans must be revised; there may be problems in financing the additional amount.

Analyzing Ongoing Programs

In addition to developing new programs, many companies have systematic ongoing ways of analyzing ongoing programs. Several analytical techniques can aid Programs in this process. This section describes value chain analysis and activity based costing.

Value Chain Analysis

The value chain for any firm is the linked set of value-creating activities of which it is a part, from acquiring the basic raw materials for component suppliers to making the ultimate end-use product and delivering it to the final consumers. Each firm must be understood in this context of its place in some overall chain of value-creating activities.

From the strategic planning perspective, the value chain concept highlights three potentially useful areas:

1. Linkages with suppliers. 2. Linkages with customers. 3. Process linkages within the value chain of the firm.

Linkages with Suppliers. The linkage with suppliers should be managed so that both the firm and its suppliers can benefit. Taking advantage of such opportunities can dramatically lower costs, increase value, or both.

Example. When delivery of bulk chocolate began in liquid form in tank cars instead of in 10-pound molded bars, an industrial chocolate firm (i.e., the supplier) eliminated the cost of molding and packing bars, and a confectionery producer (i.e., the firm) saved the cost of unpacking and melting.3

Linkages with Customers. Customer linkages can be just as important as supplier linkages. There are many examples of mutually beneficial linkages between a firm and its customers.

Example. Some container producers (i.e., the firms) have constructed manufacturing facilities next to beer breweries (i.e., the customers) and deliver the containers through overhead conveyors directly onto the customers' assembly lines. This results in significant cost reductions for both the container producers and their customers by expediting the transport of empty containers, which are bulky and heavy.

Process Linkages with the Value Chain of the Firm. Value chain analysis explicitly recognizes the fact that the individual value activities within a firm are not independent but rather are interdependent.

Example. At McDonald's, the timing of promotional campaigns (one value activity) significantly influences capacity utilization in production (another value activity). These linked activities must be coordinated if the full effect of the promotion is to be realized.

A company might want to analyze the process linkages within the value chain, seeking to improve their efficiency. The overall objective of this analysis is to move materials from vendors, through production, and to the customer at the lowest cost in the shortest time, and of acceptable quality.

Reducing the number of separate parts and increasing their ease of manufacture might increase efficiency of the design portion of the value chain.

Example. Japanese VCR producers were able to reduce prices from $1,300 in 1977 to $295 in 1984 by emphasizing the impact of an early step in the chain (product design) on a later step (production) by drastically reducing the number of parts in VCRs.

A firm should also work toward improving the efficiency of every activity within the chain through a better understanding of the drivers that regulate costs and value for each activity.

Efficiency of the inward portion (i.e., the portion that precedes production) might be improved by reducing the number of vendors; by having a computer system place orders automatically; by limiting deliveries to "just in-time" amounts (which reduces inventories); and by holding vendors responsible for quality, which reduces or eliminates inspection costs.

Efficiency of the production portion might be improved by increased automation, perhaps by using robots; by rearranging machines into "cells," each of which performs a series of related production steps; and by better production control systems.

Efficiency of the outward portion (i.e., from the factory door to the customer) might be improved by having customers place orders electronically (which is now common in hospital supply companies and in certain types of retailing); by changing the locations of warehouses; by changing channels of distribution and placing more or less emphasis on distributors and wholesalers; by improving the efficiency of warehouse operations; and by changing the mix between company-operated trucks and transportation furnished by outside agencies.

Examples. Procter & Gamble places order-entry computers in Wal-Mart stores, eliminating errors that used to occur when Wal-Mart buyers transmitted orders to P&G order-entry clerks, reducing the cost of operation in both firms, and reducing the time between initiation of an order and shipment of the goods. Levi Strauss has a similar system with its own retail stores.

These efficiency-oriented initiatives usually involve trade-offs. For example, direct orders from customer computers may speed delivery and reduce paperwork but lead to an increase in order-filling costs because of the smaller quantities ordered. Thus, it is important that all related parts of the value chain be analyzed together; otherwise, improvements in one link may be offset by additional costs in another.

Activity-Based Costing

Increased computerization and automation in factories have led to important changes in systems for collecting and using cost information. Sixty

years ago, most companies allocated overhead costs to products by means of a plant wide overhead rate based on direct labor hours or dollars. Today, an increasing number of companies collect costs for material-related costs (e.g., transportation, storage) separately from other manufacturing costs; and they collect manufacturing costs for individual departments, individual machines, or individual "cells," which consist of groups of machines that perform a series of related operations on a product. In these cost centers, direct labor costs may be combined with other costs, giving conversion cost-that is, the labor and factory overhead cost of converting raw materials and parts into finished products. In addition to conversion costs, the newer systems also assign R&D, general and administrative, and marketing costs to products. The newer systems also use multiple allocation bases. In these newer systems, the word activity is often used instead of cost center, and cost driver used instead of basis of allocation; and the cost system is called an activity-based cost system (ABC).

The basis of allocation, or cost driver, for each of the cost centers reflects the cause of cost incurrence-that is, the element that explains why the amount of cost incurred in the cost center, or activity, varies. For example, in procurement, the cost driver may be the number of orders placed; for internal transportation, the number of parts moved; for product design, the number of different parts in the product; and for production control, the number of setups. Note that "cause" here refers to the factor causing the costs in the individual cost center.

Examples. General Motors used ABC analysis to formulate a component make or-buy strategy. In a single plant, its ABC system had over 5,000 activity cost pools and over 100 different cost drivers (i.e., drivers that traced activity cost pools to products).

Schrader Bellows, a division of Scovill, Inc., used ABC analysis to reevaluate marketing and product line strategies. Its ABC analysis had 28 activity cost pools and 16 cost drivers. Its previous system had one cost pool for each of the five production departments and used one cost driver (direct labor) to allocate the cost pools to products.

The ABC concept is not particularly subtle or counterintuitive. In fact, it is very much in line with common sense. But in earlier days factories tended to produce fewer different products, cost was labor dominated (high labor cost relative to overhead), and products tended to differ less in the amount of support services they consumed. Thus, the activity basis for overhead allocation was not

likely to result in product costs much different from a simple volume driven basis tied to labor cost.

Today, labor cost in many companies is not only dramatically less important; it is also viewed less and less as a cost to be varied when production volume varies. Indirect cost is now the dominant part of cost in many companies. In the prototypical "flexible factory," raw material is the only production volume-dependent cost and the only cost directly relatable to individual products. Advocates of ABC maintain that a meaningful assessment of full cost today must involve assigning overhead in proportion to the activities that generate it in the long run.

Use of ABC Information

ABC, when used as part of the strategic planning process, may provide useful insights. For example, it may show that complex products with many separate parts have higher design and production costs than simpler products; that products with low volume have higher unit costs than high-volume products; that products with many setups or many engineering change orders have higher unit costs than other products; and that products with a short life cycle have higher unit costs than other products. Information on the magnitude of these differences may lead to changes in policies relating to full line versus focused product line, product pricing, make-or-buy decisions, product mix decisions, adding or deleting products, elimination of non value added activities, and to an emphasis on better factory layouts and simplicity in product design.

Examples. In 1992, Chrysler benefited from ABC analysis in a pilot project that examined the designs for wiring harnesses for the company's popular minivans. The harnesses yoke together bundles of wires. Nine departments, from design to assembly to finance, set out to reckon the optimum number of wiring harnesses. The assembly people favored using just one kind of harness, the design group wanted nine, and so on. When ABC was used to cost out activities across the entire production of the vehicles, everyone saw the optimum number was two.

Hewlett-Packard's successful products, new models of HP 3000 and HP 9000 midrange computers, benefited from better cost information. When ABC showed that testing new designs and parts was extremely expensive, engineers changed their plans to favor components that required less testing, thus lowering costs.

Other companies have realized significant cost savings as a result of reducing complexity.

Examples. Procter & Gamble had standardized product formulas and packages. P&G used just two basic packages for shampoo in the United States, saving $25 million a year.

General Motors had reduced the number of US car models from 53 to 44 and combined its Pontiac and GMC division to simplify marketing.

Strategic Planning Process

In a company that operates on a calendar-year basis, the strategic planning process starts in the spring and is completed in the fall, just prior to the preparation of the annual budget. The process involves the following steps:

1. Reviewing and updating the strategic plan from last year.
2. Deciding on assumptions and guidelines.
3. First iteration of the new strategic plan.
4. Analysis.
5. Second iteration of the new strategic plan.
6. Review and approval.

Reviewing and Updating the Strategic Plan

During the course of a year, decisions are made that change the strategic plan; management makes decisions whenever there is a need to do so, not in response to a set timetable. Conceptually, the implications of each decision for the next five years should be incorporated in the strategic plan as soon as the decision is made. Otherwise, the formal plan no longer represents the path that the company plans to follow. In particular, the plan may not represent a valid base for testing proposed strategies and programs, which is one of the plan's principal values. As a practical matter, however, very few organizations continuously update their strategic plans. Updating involves more paperwork and computer time than management believes is worthwhile.

The first step in the annual strategic planning process, therefore, is to review and update the strategic plan that was agreed to last year. Actual experience for the first few months of the current year is already reflected in the

accounting reports, and these are extrapolated for the current best estimate of the year as a whole. If the computer program is sufficiently flexible, it can extend the impact of current forces to the "out years'' that is, the years beyond the current year; if not, rough estimates are made manually. The implications of new program decisions on revenues, expenses, capital expenditures, and cash flow are incorporated. The planning staff usually makes this update. Management may be involved if there are uncertainties or ambiguities in the program decisions that must be resolved.

Deciding on Assumptions and Guidelines

The updated strategic plan incorporates such broad assumptions as the growth in Gross Domestic Product, cyclical movements, labor rates, prices of important raw materials, interest rates, selling prices, market conditions such as the actions of competitors, and the impact of government legislation in each of the countries in which the company operates. These assumptions are reexamined and, if necessary, are changed to incorporate the latest information.

The updated strategic plan contains the implications on revenues, expenses, and cash flows of the existing operating facilities and changes in these facilities from opening new plants, expanding existing plants, closing plants, and relocating facilities. It shows the amount of new capital likely to be available from retained earnings and new financing. These conditions are examined to ensure that they are currently valid, and the amounts are extended for another year.

The resulting update is not done in great detail. A rough approximation is adequate as a basis for senior management decisions about objectives that are to be attained in the plan years and about the key guidelines that are to be observed in planning how to attain these objectives. The objectives usually are stated separately for each product line and are expressed as sales revenue, as a profit percentage, or a return on capital employed. The principal guidelines are assumptions about wage and salary increases (including new benefits programs that may affect compensation), new or discontinued product lines, and selling prices. For overhead units, personnel ceilings may be specified. At this stage, they represent senior management's tentative views. In the next stage, business unit managers have an opportunity to present their views.

Management Meetings. Many companies hold an annual meeting of corporate and business unit managers (often called a "summit conference") to

discuss the proposed objectives and guidelines. Such a meeting typically lasts several days and is held away from company facilities to minimize distractions. In addition to the formal agenda, such a meeting provides an opportunity for managers throughout the corporation to get to know one another.

First Iteration of the Strategic Plan

Using the assumptions, objectives, and guidelines, the business units and other operating units prepare their "first cut" of the strategic plan, which may include different operating plans than those included in the current plan, such as a change in marketing tactics; these are supported by reasons. Business unit staffs do much of the analytical work, but business unit managers make the final judgments. Depending on the personal relationships, business unit personnel may seek the advice of the headquarters staff in the development of these plans. Members of the headquarters staff often visit the business units during this process for the purpose of clarifying the guidelines, assumptions, and instructions and, in general, to assist in the planning process.

The completed strategic plan consists of income statements; of inventory, accounts receivable, and other key balance sheet items; of number of employees; of quantitative information about sales and production; of expenditures for plant and other capital acquisitions; of any other unusual cash flows; and of a narrative explanation and justification. The numbers are in considerable detail (although in much less detail than in the annual budget) for the next year and the following year, with only summary information for the later years.

Analysis

When headquarters receives the business unit plans, they aggregate them into an overall corporate strategic plan. Planning staff and the marketing, production, and other functional executives at headquarters analyze this plan in depth. Business Unit X plans a new marketing tactic; is it likely that the resulting sales will be as large as the plan indicates? Business Unit Y plans an increase in general and administrative personnel; are the additional people really needed? Business Unit Z assumes a large increase in productivity; is the supporting justification realistic? Research and development promises important new products; are the business units prepared to manufacture and sell these products? Some business unit managers tend to build slack into their estimates, so their objectives are more easily accomplished; can some of this slack be detected and eliminated?

The headquarters people examine the business unit plans for consistency also. If one business unit manufactures for another unit, are the planned shipments from the manufacturing unit equal to the planned sales of the sales unit? In particular, are planned shipments to overseas subsidiaries consistent with the planned sales volume of these subsidiaries?

Headquarters staff and their counterparts in the business units resolve some of these questions by discussion and report others to corporate management, at which point they are the basis for discussions between corporate managers and business unit managers. These discussions are the heart of the formal planning process, usually requiring several hours and often going on for a day or more in each business unit.

In many cases, the sum of the business unit plans reveals a planning gap-that is, the sum of the individual plans does not add up to attainment of the corporate objectives. There are only three ways to close a planning gap: (1) find opportunities for improvements in the business unit plans, (2) make acquisitions, or (3) review the corporate objectives. Senior management usually focuses on the first.

From the planning numbers, the headquarters staff can develop planned cash requirements for the whole organization. These may indicate the need for additional financing or, alternatively, the possibility of increasing dividends.

Second Iteration of the Strategic Plan

Analysis of the first submission may require a revision of the plans of only certain business units, but it may lead to a change in the assumptions and guidelines that affect all business units. For example, the aggregation of all plans may indicate that the cash drain from increasing inventories and capital expenditures is more than the company can safely tolerate; if so, there may be a requirement for postponing expenditures throughout the organization. These decisions lead to a revision of the plan. Technically, the revision is much simpler to prepare than the original submission, because it requires changes in only a few members; but only organizationally, it is the most painful part of the process because it calls for difficult decisions.

Interrelationship Among Strategic Planning, Management Control and operational Control

Although total management planning and control activities have been classified into three distinct categories, namely strategic planning, management control and operational control, all three are interdependent and interrelated.

Strategic planning is concerned with deciding the goals of an organization, changes in goals, resources needed for attaining goals and policies related to the acquisition, use and disposition of resources. Thus, strategic planning lays the foundation for management control, because, once goals are determined, the management has to translate them into specific tasks aimed at achieving the goals. The process involved is that of management control. Management control, exercised by the top management focuses on the overall performance of each responsibility center. It results in the control of managers by higher-level managers and sets guidelines for operational control. Managers of responsibility centers in turn exercise control over the specific tasks and activities of their respective departments. If operational control is not properly exercised, the department will not be able to achieve its planned targets. This may, in turn, create imbalances in other departments, e.g., if the marketing department is not able to meet the planned sales targets, the inventories will pile up and production may have to be cut down.

Distinctions between Strategic Planning, Management Control and Operational Control

The strategic planning process is carried on at the top and the involvement of the middle management is small, as against management control in which both the top management and middle management are closely involved. While strategic planning relies heavily on external information, management control largely uses data generated within the organization. Operational control uses data generated on specific tasks or activities. The reliability of data generated during the process of strategic planning is subject to a high level of doubt, because of the uncertainties involved. Data generated in management control and operational control is more accurate and reliable because it relates to events taking place or likely to occur in the near future or having taken place in the past.

In the management control process, performance is evaluated against standards determined by managers. How tight or loose standards are win depend upon how the standards are set. Thus, while the management control process

involves data that is personalized, the estimates in strategic planning are impersonal and neutral.

The focus of activity in operational control is on specific tasks, while in management control it is on the whole operation of the organization. In the case of operational control, decision rules can be developed to decide about optimum decisions, while in the case of management control, a lot of managerial judgment is required and the scope of quantitative models is limited. While the focus of operational control is on efficiency, management control essentially focuses on organizational effectiveness. In the case of management control, difficulties arise in developing valid, objective standards with which performance can be compared. Control is more difficult because it is difficult to develop approximate measures of performance for a department, which performs various types of tasks. Human considerations are dominant in the management control process. The success or failure of the management control process also depends on the personalities of the managers involved. The system can either act as a motivational device or kill initiative. This win depend upon how the system has been designed and how it is being used. The basic purpose of this system is to facilitate constructive actions and control, not to restrict such actions. In the case of the operational control system, the system is more important than the human element, because it is system that makes/indicates the decision rather than the managers. The management control system is usually built around a financial structure. Thus, it emphasizes the measurement of performance both in physical as well as in financial terms. The operational control system, on the other hand, closely monitors physical achievements such as labor hours, machine hours, units produced, units sold, units defective, quantity procured, loss percentage and yield.

Variations in Controls

In the ideal world, all these controls would be working in the same direction, the real world this ideal is never fully achieved. The general nature of control that is appropriate in a given situation varies according to the nature both of the work involved and of the individual manager. Three dimensions of the work are important:

1. The amount of management discretion.
2. The amount of interdependence, and

3. The time span of performance.

Management Discretion: The work done by an organization unit can be located along a scale with routinized production or clerical operations at one end and creative, unspecifiable activities, such as research at the other. For activities at or near the routine end, specific performance standards can be established, and rewards (for example in the form of bonuses) can be related to how actual performance compares to these standards. For activities at the other end of the scale, specific standards are not feasible; indeed, an attempt to impose them is likely to have dysfunctional consequences.

Interdependence: Organization units can also be located along a scale according to their degree of independence from, or interdependence with, other units. To the extent that the work of the whole organization requires that Individual units cooperate closely with one another, controls that focus on the performance of an individual unit can be dysfunctional.

Time Span: Finally, organization units can be arrayed according to the time span between the initiation of action and results. A selling organization whose job is to visit customers and take orders is at one extreme (with a short time span), and an organization responsible for all the efforts involved in introducing a new Product is at the other extreme (with a long time span). When the time span is short, performance measurement can be, and should be, frequen4 and actual performance can be compared with short-run standards. When the time span is long, any measurement of interim performance should be regarded as being highly tentative.

Personal Differences: In addition to these differences in the nature of the work, the control system should also take account of differences in the motivation and other personality characteristics of individual managers to the extent that this is feasible. Generally, these differences affect the way one manager deals with another in using the system rather than differences in the way the formal system is constructed.

MANAGEMENT CONTROL PROCESS

Management control has two aspects, namely system and process. These are intimately interrelated. The system outlines authority relationships, autonomy delegation, relationship among various organizational sub-limits, parameters for performance evaluation, reward and punishments for

achievement and non-achievement of targets, and information flow among various responsibility centers of the organization. The processes are managerial processes involved in establishing goals and objectives, performance appraisal of responsibility centers, ensuring achievement of targets and budgets by various org.0usational sub-units, follow-up of remedial action plans, implementation of decisons taken in performance review meetings. The control system provides the necessary feedback and other relevant information and thus affects the quality of the decisions. The effectiveness of the control process is dependent on the quality of feedback received and the way it is used by the senior management for performance appraisal.

In hierarchical organizations with appropriate decentralization of authority the control process begins with a review of the past performance of strategic business units and responsibility centers, and negotiation of specific objectives and targets for the next year. A periodic recording of actual results and reporting of actual results against the targets follow this. The senior management reviews the performance of responsibility centers on the basis of this reported information. During this process, areas where improvement is necessary are identified and reasons for shortfall are analyzed. Then, remedial actions are decided upon. In the next review meeting, results of past corrective action together with the current performance are analyzed. This process is carried through in each review meeting.

In the process of reviewing the performance, specific targets may also get altered as a result of negotiation with the senior management. Thus, the management control process is primarily managerial in nature, secondarily accounting-oriented and involves behavioral issues related to superior-subordinate relationship. While the management must identify the objectives of various sub-units and contributions expected from managers, accountants should help in methods of measuring and reporting results as they are achieved.

Multi-level Controls

Hierarchical organizations have multiple layers of responsibility centers. The organization as a whole can be treated as an overall responsibility center. Its major sub-parts are first- level responsibility centers which can be further sub-divided into second-level responsibility centers, this process can be continued further to subsequent levels, depending upon the size and complexity

of task performed by the responsibility centers. Thus regional offices of a bank are the first-level responsibility centers, divisional offices the secondary Level responsibility centers and branches, the third-level responsibility centers. It is possible to identify further responsibility centers within each branch. Corresponding to organizational hierarchy, there exists control hierarchy. The top management divides the overall goals and these are communicated to the first-level responsibility centers for deciding specific objectives for this level. This center communicates with the next level and the process continues. Each level of responsibility center also influences the upper level responsibility centers. During the review meetings, each level reviews the performance of the level below.

In a multidivisional, multi product situation, the process of management control involves performance evaluation of strategic business units and responsibility centers both for the short-term as well as long-term achievements. Since it also involves the resource allocation by corporate headquarters, intense competition among various Strategic business units can be witnessed for resource snatching. This process can be compared to center-state relations in a country. While the states want to get as much share of the national resources as possible, the center has the difficult tasks of satisfying the demands of the states, given the limited resources. States express their aspirations through the formation of regional parties representing regional interests, while the center has the key role of developing a national perspective. The same is true of management control. An over emphasis on the evaluation aspect of a responsibility center, without giving adequate resource resentment among the managers and foster an individualistic viewpoint rather than a corporate Viewpoint. This, it is likely to lead to regionalism. A senior executive from a large corporate Organization having several different manufacturing plant once pointed out how difficult it was for plant managers to overcome the plant perspective and develop the corporate Perspective. Although it is difficult to generalize), organizations do face the pressure of centrifugal tendencies on the part of divisional managers and the role of corporate management is to provide the necessary centripetal force to keep the system in balance.

System's Thinking and Control System Design

Stafford Beer* the well-known writer and practitioner of cybernetics has classified systems according to the characteristics of complexity, probabilism

and self-regulation. A system with a large number of components and interrelationship is complex, and a system that cannot be described in a precise fashion is exceedingly complex. Probably refers to the probabilistic nature of the system. In a deterministic system the parts interact in a perfectly predictable way. In the case of probabilistic systems, this is not so. However, what may occur can be described in probabilistic terms. Self-regulation refers to control from within, utilizing the margin of error as a means of control. Self-regulation Is essential if the system has to maintain its structure. Depending upon the characteristics of the system, specific tools of analysis have been developed For analyzing the extreme, complexity, the black-box technique is used, for probabilism, the information theory is used and for self- regulation, The feedback principle.

The law of Requisite Variety: As interrelationships among the parts of a system Increase, the system's variety also increases. Therefore, the larger is a system, the larger is its variety. Thus, when an Organization grows from a simple one with few employees and few interdependencies to a larger one, its variety increases. As the reduction in variety makes the system more predictable, the control mechanisms are designed to reduce the variety. The reduction in variety is achieved through information. Ashby has proposed the law of requisite variety for the design of control mechanisms. By this we mean that the control mechanism (controller) should have at least as many alternatives as the system can exhibit. Thus, in the case of a machine, the control mechanism is said to have requisite variety, if all the causes of stoppage are known and corrective action can be taken for all such causes.

The law of requisite variety demands the same amount of variety in the control mechanism as there is in the system being controlled. If the control mechanism does not possess the requisite variety, it may not be possible to control the system as many things may go wrong and the control mechanism does not possess as many alternatives as the system can exhibit. One way of achieving better control is by reducing the variety in the system, so that the requisite variety of the control mechanism will be smaller. Thus, various organizational policies aim at reducing the variety, by serving as a guideline for taking action.

The Black Box Technique

The major determinants of the complexity of a system include*

(i) The number of elements comprising the system, (ii) the attributes of the specified elements of the system, (iii) the interactions among the elements of the system and (iv) the degree of orgartisational inherent in the system, i.e., the existence or absence of predetermined rules and regulations which guide the interactions of the elements or specify the attributes of system's elements.

The black box technique involves manipulation of the input and classification for the output by observing the response of the system, and thereby deducing something about the mechanisms within the system, in terms of regularities or repetitiveness. It may be observed that the experimenter may be affecting the system that he is studying and thus, his behavior may be affecting he system under study, i.e., the box, and he may himself be getting affected by the system's behavior. Thus the experimenter may be coupled to the box and form together a feedback system. This is particularly true of business systems. The more the regularities or repetitiveness identified on the basis of classification of the output, the more knowledge is said to have been obtained about the box, and more the reduction in complexity of the system. Once the output is classified distinctively on the basis of degree of similarity, these similarities are then converted into many-to-one transformations, with a view to reducing the system's variety. As mentioned earlier, it is essential to reduce variety to ensure proper controls in the system.

Consider the case of business systems. If the manager or analyst makes an attempt to understand all possible combinations of the elementary units of the system, he is likely to be overawed by the details. Considering the system as indefinable in detail, the technique of black box can be used in arriving at many to one transformation's for instance various policies to direct the organization. Thus, the black box technique involves (i) input manipulation, (ii) output classification, and (iii) many-to-one transformation.

An important lesson to be learnt from this technique is the formulation of principles of self-regulation without knowing the exact nature of all causal relationships between inputs and outputs. As organizations can be considered black boxes because of their complexity, in order to achieve control it should be sufficient to know about the inputs that lead to desirable outputs. Though our aim is usually to improve knowledge of causal relationships, it is not necessary to acquire complete knowledge if the objective is to achieve control.

GOALS AND STRATEGIES

The management control process takes place within the context of goals, and of strategies for achieving these goals, that have been decided upon in the strategic planning process. The management control process is concerned with the attainment of goals and the implementation of strategies, not with their formulation. A management control system is situational, that is, it is tailored to the particular goals and the particular strategies of the organizations. In order to carry out the management control process managers must know what the company's goals and strategies are, and in particular, must understand how they influence the process. Moreover, the systems designer should insure that the control system is consistent with the organization's goals, whatever they are. It is appropriate, therefore, that we discuss the ide.1tification of goals and strategies and how they are communicated to those involved in management control. In implementing strategies, an important concept is that of the key variable: Key variables are those relatively few variables that must be watched with particular care if the company is to achieve its goals.

Goals

Goals Distinguished form Objectives: We use the term goals to mean broad, fairly timeless statements of what the organization wants to achieve and the term objectives are more specific statements of ends, the achievement of which is contemplated 'within a special time period. Others use these terms as synonyms, and still others use the meanings given above. Our use is consistent with the etymology of these terms (although abridged dictionaries typically do not distinguish clearly between them), but more importantly, our meaning of "objectives" is consistent with its meaning in "management of objectives", which is a phrase used with increasing frequency in both business and government control systems. Goals are developed in the strategic planning process, and objectives are used in the management control process. There is the possibility of confusion if a clear distinction between them is not made. They differ with respect to the time period and the degree of specificity.

1. *Time Period :* Goals are usually stated without reference to a time period, whereas objectives are intended to be accomplished by a specified date, sometimes in one year, sometimes in five years or longer. For example, a goal of government is to improve health; establishes objectives for medical education, research, insurance programmes, construction of health care facilities and the

like, each of which is to be attained by a certain time, and each of which presumably contributes toward the broad goal.

2. *Specificity:* Goals are stated in broad, general terms. Objectives are stated in more specific terms, preferably in such a way that there is some measurable basis for determining the extent to which the objective has been achieved. For example, an objective of Spencer group is to open a certain number of additional fast food outlets next year; indeed, its objective may be stated even more specifically in terms of the number of outlets that are to be opened in each geographical area. A company may set as an objective, the attainment of Rs. 20 million sales volume five years from now. To the extent that objectives are stated in this ways, the management control system can measure the degree of their attainment, but if they are vague or ill defined, no system can measure them.

Profitability as a Goal: It is safe to say that an important goal of most businesses is to earn a profit. Its shareholders own a business. They have invested money in the business, and they expect a return on this investment. Profit is a measure of this return. Presumably, the higher the profit, the better off is the shareholders. It follows that, in a general way, a goal of the business should be to earn as high a profit for the shareholders as is feasible.

Statement of Goals

A statement about profitability, along the lines discussed above, and a statement about growth, expresses the economic goals of the organization. In addition although often unstated, an organization is the fundamental goal of survival, and therefore will not knowingly adopt strategies that are so risky that they threaten its very existence. The organization also has social goals, which, although difficult to formulate in meaningful words, are appropriately part of its goals.

The list of goals is desirably short. The more numerous they are, the greater the possibility that one criterion will conflict with another when a proposed strategy is being discussed, and this conflict will hamper, rather than assist in, the resolution of the issue. To take an obvious example, if a company states its economic goals to be a 18 percent return on shareholders investment, a 15percent return on capital employed, a 12 percent annual increase in earnings per share, and a 10 percent increase in sales volume, a proposed strategy may be consistent with some of these goals, but not with others. Less obviously, some

companies state a long list of goals, some of which are little more than platitudes, and a serious attempt to analyze proposed strategies in terms of these criteria can be frustrating. Actually, when the list is long and vague, the tendency is to disregard many of the stated goals when proposed strategies are being analyzed, and such a list therefore serves no useful purpose.

Strategies

Although most companies have the goal of a satisfactory return on investment, each company selects its own paths that it hopes win lead to the achievement of this goal. These paths are its strategies. Although strategies can be classified in various ways, for our purposes, it is sufficient to call them either (i) charters or (ii) policies*

Charters: Although most companies legal charters an, written in such broad terms that the company is permitted to engage in any type of lawful economic activity, in practice a company's management draws boundaries around the territory in which it will operate in a conglomerate these boundaries may be very wide; at the extreme, a company may be willing to enter any industry in which it believes there are promising profit opportunities. One-company states, for example, "Our policy is planned profitable growth in any market we can serve well". Few companies, including most conglomerates, have such wide boundaries, however. Most companies state. 'We are in the steel business"," We are in the air transport business", or" We are in the food business". Such statements are a beginning for the delineation of the company's charter, but it is desirable that they be made more specific.

Within an industry, each company presumably tries to find the best niche for itself. (The current marketing term for this is "positioning"). Its decision in this regard is much affected by the personality of its chief executive officer, and is influenced by his background, his drive, and his attitude toward expansion and toward risk taking. The possible permutations are too large to enumerate, but to give an indication. The company can aim at the quality end of a market, at the low-price end, or at the whole spectrum; it can manufacture what it sells, or buy what it sells from vendors, or assemble components that it buys from vendors; it can seek a dominant market share, or accept a steady market share, and so on.

Divisional Charters: Within the general boundaries set for the company as a whole, charters are established for each division or other principal operating unit. These divisional charters are an important factor in the management control

process, for they set limits to divisional planning. In some companies, divisions are permitted to grow and to extend their activities without regard to a specific charter. When this happens, programmes of two or more divisions may overlap in an undesirable way. Two divisions may compete against one another in the same market. Or, one division may be counting on orders from another division to fill its production capacity, without knowing that the other division has made plans to obtain its products from another source. Or, all the divisions may overlook an important market segment. Under certain circumstances competition among the divisions is sound practice. For example, the various car divisions of T.V.S. compete vigorously with one another. The point is not that such competition is eliminated but rather that it be carried on knowingly, and as a part of the overall strategy of the corporation.

Although top management sets divisional charters, divisional managers usually participate actively in the process. For various reasons, Division A may wish to invade the territory assigned to Division B, and the Division, A manager will argue vigorously the case for doing so. Because the m4nager of Division B usually does not want his own boundaries to be constricted, he opposes such a move, and top management must then decide.

Polices: In addition to the corporate charter and divisional charters, the strategies also comprise the broad policies that are to govern corporate activities. These policies are essentially constraints within which subordinate managers are expected to operate. They include promotion, transfer, compensation, retirement, and other personnel policies; dividend, debt structure, short-term borrowing and other financial policies; capital investment criteria; quality levels and other product policies; and policies regarding discrimination, pollution, and other social issues. The formulation of policies that are specific enough so that they are more than platitudes, yet broad enough so that they do not unduly restrict the operating manager is a difficult task.

Formulation of Strategies

Strategies are intended to remain in force for a reasonably long time. They must, however, be dynamic, for a company's environment changes, and its strategies must be adapted to the current environment. Thinking about strategy is an important top management activity, although not a time consuming activity. Andrews says that the strategist considers four questions simultaneously: What might we do? What can we do? What do we want to do? And what should we

do? * These questions are addressed in the context of the company's environment as it is currently perceived and taking account of the resources, which are, or may be, available to the company. Strategy is a match between environmental opportunities and organizational resources, both as perceived by management.

A few companies have developed systematic approaches to the formulation of strategy. Bharat Heavy Electricals Limited (BHEL), for example, has developed a model that incorporates the principal factors that, according to its studies, govern return on investment and use this model both to search out strategic opportunities at the corporate level and also to analyze strategies proposed by division managers. Aguillar describes companies that systematically re-examine their environment as a basis for making changes in strategy. Most companies do not make systematic strategic studies. Instead when an opportunity or a threat is identified, it studies add the study may lead to a change in strategy. Some of the possibilities originate at corporate head quarters; others originate when a division perceived an opportunity that is outside of its existing charter.

In evaluating present and proposed strategies, the following questions are suggested. *

1. Is the strategy identifiable and has it been made clear either in words or practice? (The unstated strategy cannot be tested or contested and is likely therefore to be weak. If it is implicit in the intuition of a strong leader, his organization is likely to be weak and the demands his strategy makes upon it are likely to remain unmet).

2. Does the strategy exploit fully domestic and international environmental opportunity? (Unless growth is incompatible with the resources of an organization or the aspirations of its management, it is likely that a strategy that does not purport to make full use of market opportunity will be weak also in other respects. Vulnerability to competition is increased by lack of interest in market share).

3. Is the strategy consistent with corporate competence and resources, both present and projected? (Although additional resources, both financial and managerial, are available to companies with genuine opportunity, the availability of each must be finally determined and programmed along a practicable time scale).

4. Are the major provisions of the strategy and the program of major policies of which it is comprised internally consistent? One advantage of making as specific a statement of strategy as is practicable is the resultant availability of a careful check on coherence, compatibility, and synergy-the state in which the whole can be viewed as greater than the sum of its parts).

5. Is the chosen level of risk feasible in economic and personal terms? (Strategies vary in the degree of risk willingly undertaken by their designers, but the choice should be made knowingly).

6. Is the strategy appropriate to the personal values and aspirations of the key managers? (Conflict between the personal preferences, aspirations, and goals of the key members of an Organization and the Plan for its future is a sign of danger and a harbinger of mediocre performance or failure).

7. Is the strategy appropriate to the desired level of contribution to society? (Although it can be argued that filling any economic need contributes to the social good, it is clear that a manufacturer of cigarettes might well consider diversification on grounds other than his fear of future legislation).

8. Does the strategy constitute a clear stimulus to organizational effort and commitment? (Some undertakings are inherently more likely to gain the commitment of able men of goodwill than others. Generally speaking, the bolder the choice of goals and the wider the range of human needs they reflect, the more successfully they will appeal to the capable membership of healthy and energetic organization.

9. Are there early indications of the responsiveness of markets and market segments to the strategy? (A strategy may pass with flying color all the tests so far proposed, but if within a time period made reasonable by the company's resources and Original plan the strategy does not work, then it must be weak in some way that has escaped attention).

Key Variables

In addition to measuring profitability, the system highlights certain variables that have a significant effect on profitability. These are called key variables. (Also "strategic factors", "key success factors", "key result areas", and "pulse points"). In most situations, there are relatively&, such variables, six being the number most commonly cited. There will be key variables for the

Organization as a whole and other, perhaps different, key variables for the divisions or other Organization units.

Nature of Key variables: The identification of key variables requires a thorough understanding of the economics of the business. In some cases constructing a model of the business and using it to discover the sensitivity of profits to various factors can find them. Usually, however, the variables are uncovered by discussions with persons who have acquired a deep understanding of the business through long experience with it. These persons know intuitively the important things to keep an eye on, and these are the key variables. More specifically, a key variable has the following characteristics:

1. It is important in explaining the success or failure of the Organization.

2. It is volatile, that K it can change quickly, often for reasons that are not controllable by the manager.

3. Prompt action is required when a significant change occurs.

4. The change is not easy to predict.

5. The variable can be measured, either directly or via a surrogate. For example, customer satisfaction cannot be measured directly, but its surrogate, number of returns can be a key variable.

One way to attempt to isolate the key variables is to look at the raison d" etre of the industry itself, and of the particular firm within that industry. A useful question is, "Why, in a free- enterprise economy, should this company be able to operate at a satisfactory profit?" A hardheaded rethinking of this fundamental question should lead to a careful spelling out of just what functions the company is performing that its customers are willing to pay for. Further thought should then be devoted to the question of why this company, rather than its competitors, is able to attract profitable volume. Then, finally, it may be possible to pinpoint those activities that need to be done particularly well if the company is to enjoy even greater success.

Another approach that may be useful for an analyst who is trying to improve his understanding of the interplay of economic forces on a company is to examine the way in which decisions are made. What decisions doe's management regards as major ones? What are the factors that management is concerned about in making these decisions? And specifically, for many types of

intangible, discretionary expenditures, what will be the source of revenue from which the company will recover this cost and earn a profit? Questions such as these should also eventually lead to the identification of those elements, which are critical to the success of a company in a competitive environment.

Marketing Variables: Some aspect of marketing effort is key variable in most businesses, not-only because of the need to take prompt action in the marketing area if results are unsatisfactory, but also because of the need to make prompt adjustments in production and other plans if a significant change in the volume of business seems to be on the horizon. Among the specific measures used are the following:

1. Sales: This item is especially important in retailing and in other businesses in which the customer's action is immediately reflected in sales revenue.

2. Bookings: in companies that manufacture for future delivery, the nature and volume of sales orders booked is more important than current sales volume, both as an indicator of marketing success and as a warning that other plans require adjustment.

3. Market Share: Unless market share is watched closely, deterioration in the company's competitive position can be obscured by a reported increase in sales volume that results from generally favorable business conditions. Automobile dealers report their sales to automobile manufacturers every ten days, and detailed information on market share is published a few day later. In some industries, however, market share is difficult to determine, or can be determined only several months after the fact.

4. Gross Margin Percentage: A change in the average gross margin percentage of a product line may signal a change in the sales mix of products, or in the proportion of sales that cannot be made at regular prices. Either situation can be cause for concern. An increase in off-price Wes may be indication of trouble in the production operation (resulting, e.g., from poor quality or from over production of certain styles) as well as in the ma k ting function itself.

5. Key Account Orders: In companies that sell to retailers, the order received from certain important accounts-large department stores, discount chains, super markets, mail order houses-may provide an early indication of the success of the entire marketing effort. If the company does not get its "fair share" of the

business from these accounts, this is a signal of grave trouble with its, styling, its pricing, its promotional efforts, or other aspects of its marketing programmes.

6. Lost Orders: A variation on the above in the number of customers who should be expected to place orders but who do not.

7. Promotional Indicators: The renewal rate on magazine subscriptions, the direct mail response rate for companies that rely on direct mail as a marketing tool, the coupon returns for companies that use advertisements with coupons, are all indicators of the success of marketing efforts. Because of the difficulty of predicting success and because of the importance of these efforts on profitability, in certain companies variables such as these are watched closely. Some of them, such as the subscription renewal rate for a magazine, may signal a basic weakness in the product rather than in the promotional effort per se.

8. New Customers: In organizations such as banks, newspapers, and service establishments that thrive by attracting new customers who, once acquired, tend to provide revenue for along period of time, the number of such customers is a key variable. In automobile companies, the owner body, which Js the number of people who now own the company's car, is a similar variable because there is a probability that these owners will buy the same make of car again.

Production and Logistics Variables

In the ideal world, products would flow through a factory as smoothly and eventfully as a river normally flows between its banks. But just as floods cause in a watershed, so unexpected events can causes havoc in the factory, or the distribution network that leads from factory to consumer. Some variables may warrant special management attention and prompt action if an unsatisfactory situation develops are as follows:

1. Cost Control: In many companies, management can safely assume that actual costs will be in line with standard costs, and it need not pay attention to cost control unless a "red flag!' is raised in accordance-with the exception principle. In some companies, however, costs must be monitored all the time. This is particularly the case when the profit margin as a percentage of sales in small, as in the case of super markets; a small change in costs can have a major impact on profits. Output per man-hour or overtime is indicators of cost control that are key variables in some companies.

2. Capacity Utilization: Unit costs, and hence profits, is strongly in influenced by production volume, because of the impact of fixed costs. In part, volume fluctuations are the responsibility of the marketing organization, and are identified by variables listed above, but in part they reflect the ability of production people to schedule properly and to adjust capacity to current requirements. In a professional organization, sold time, which measures the percentage of the total available professional hours that is billed to clients, is a key measure of resource utilization. In a hotel, occupancy rate, the percentage of rooms occupied each day, is a similar measure. In these and certain other organizations, products cannot be produced for inventory; if available resources are not sold today, they are lost forever. Thus, a measure of capacity utilization is almost always a key variable in such organizations.

3. Backlog: This can be an important indication of the need to change production plans, either in total or for particular items.

4. Quality: In many companies, acceptable quality can be taken for

Granted. In some, such as aircraft or drug manufacture and the operation of transportation systems of all types, a departure from the highest quality standards can be catastrophic, and some measurement of quality is a key variable. In other companies, such as the manufacture of integrated, circuits, the level of quality has a significant effect on unit costs. (If 10 percent of each batch of" chips" is of acceptable quality, unit costs are considerably higher than if the percentage is 90). Customer return is another measure of quality.

5. Yield: In many process industries, they yield, which is the amount of salable product that is obtained from a given input of raw material, has an important effect on profitability, and prompt action needs to be taken when unexpected changes are reported.

6. Raw material Costs: If the company's raw materials tend to fluctuate widely in cost, their price movements need to be watched closely, so that appropriate management action can be taken to change inventory levels, change product prices, or adopt alternative product formulations. In such companies, raw material prices are a key variable all the time, and under unusual economic conditions (such as unforeseen inflation) they may temporarily become a key variable in most companies. By contrast, labor costs are rarely a key variable; changes in labor rates occur only annually or semi-annually-, these changes can

be foreseen, and their consequences can be taken account of without a special signaling system.

7. On Time Delivery: In companies in which fulfillment of delivery promises is important and in which delivery on time is difficult, the percentage of shipments that are late is a variable that may warrant special management attention.

CONTROLS FOR DIFFERENTIATED STRATEGIES

Many factors jointly influence the organization structure and the management control process in a company. Researchers have attempted to examine these factors by applying what is called contingency theory; the name simply means that structure and process depend, or are contingent, upon various external and internal factors. Research studies have identified important factors that influence control system design, among them size, environment, technology, interdependence, and strategies.

Given the overall framework of this book-namely, that the purpose of a management control system is primarily to help to implement strategies-we suggest in this chapter how different strategies influence the management control process. Two general observations are important. First, the suggestions made in this chapter are tendencies, not hard-and-fast principles. Second, system designers need to consider the influence of other external and internal factors (environment, technology, size, culture, geographical location, management style) when designing control systems.

Corporate strategy

The logic for linking controls to strategy is based on the following line of thinking:

---Different organizations generally operate in different strategic contexts.

---Different strategies require different task priorities, key success factors, skills, perspectives, and behaviors for --effective execution.

---Control systems are measurement systems that influence the behavior of the people whose activities are being measured.

---Thus, a continuing concern in the design of control systems should be whether the behavior induced by the system is consistent with the strategy.

Concept of Corporate Strategy

Corporate strategy is about being in the right mix of businesses. Thus, corporate strategy is concerned more with the question of where to compete than with how to compete in a particular industry. "How" is the domain of business unit strategy? At the corporate level, the issues are (1) the definition of businesses in which the firm will participate and (2) the deployment of resources among those businesses.

In terms of their corporate-level strategy, companies can be classified into one of three categories. A single industry firm operates in one line of business. Exxon, which is in the petroleum industry, is an example. A related diversified firm operates in several industries, and the business units benefit from a common set of core competencies. Procter & Gamble is an example of a related diversified firm. It has business units in diapers (Pampers), detergent (Tide), soap (Ivory), toothpaste (Crest), shampoo (Head & Shoulders), and other branded consumer products. P&G has two core competencies that benefit all of its business units: (a) core skills in several chemical technologies and (b) marketing and distribution expertise in low-ticket branded consumer products. An unrelated business firm operates in businesses that are not related to one another; the connection between business units is purely financial. Textron is an example. This corporation operates in businesses as diverse as writing instruments, helicopters, chain saws, aircraft engine components, forklifts, machine tools, specialty fasteners, and gas turbine engines.

Implications for Organization Structure

Corporate strategy is a continuum with "single industry" strategy at one end and "unrelated diversification" at the other end. A firm's location on the continuum depends on the extent and type of its diversification. Different corporate strategies imply different organization structures and, in turn, different controls.

At the single industry end, the company tends to be functionally organized. Senior managers are responsible for developing the company's overall strategy to compete in its chosen industry as well as its functional strategies in such areas as research and development, manufacturing, and marketing. However, not all single industry firms are functionally organized. For instance, chains of fast-food restaurants, hotels, supermarkets, and drugstores are "single industry" firms, but business units organize them; they have both production and

marketing functions at many locations. In contrast, every unrelated diversified company (conglomerate) is organized into relatively autonomous business units. Given the large and diverse set of businesses, senior managers in such firms tend to focus on portfolio management (i.e., selection of businesses in which to engage and allocation of financial resources to the various business units), and they delegate the development of product/market strategy to the business unit managers. Thus, at the single industry end of corporate strategy, senior managers are likely to be extremely familiar with the industry in which the firm competes and many of them tend to have expertise in research and development, manufacturing, and marketing. In contrast, at the unrelated diversified end, many senior managers tend to be experts in finance.

As a firm moves from the single industry end to the unrelated diversified end, the autonomy of the business unit manager tends to increase for two reasons. First, unlike in a single industry firm, senior managers of unrelated diversified firms may not have the knowledge and expertise to make strategic and operating decisions for a group of disparate business units. Second, there is very little interdependence across business units in a conglomerate, whereas there may be a great deal of interdependence among business units in single industry and related diversified firms; greater interdependence calls for more intervention by top managers.

Because corporate-level managers are less involved in business unit operations, the size of a conglomerate's corporate staff, compared to that of a same-sized single industry firm, tends to be low. Given the unrelated nature of its varied business units, promoting from within or by laterally transferring executives from one business unit to another is less likely to benefit a conglomerate. Also, a conglomerate may not have the single, cohesive, strong corporate culture that a single industry firm often has.

Implications for Management Control

Any organization, however well aligned its structure is to the chosen strategy, cannot effectively implement its strategy without a consistent management control system. While organization structure defines the reporting relationships and the responsibilities and authorities of different managers, it needs an appropriately designed control system to function effectively. In this part of the chapter, we discuss the planning and control requirements of different corporate strategies.

Different corporate strategies imply the following differences in the context in which control systems need to be designed:

---As firms become more diversified, corporate-level managers may not have significant knowledge of, or experience in, the activities of the company's various business units. If so, corporate-level managers for highly diversified firms cannot expect to control the different businesses on the basis of intimate knowledge of their activities, and performance evaluation tends to be carried out at arm's length.

---Single industry and related diversified firms possess corporate wide core competencies (wireless technology in the case of Motorola) on which the strategies of most of the business units are based. Communication channels and transfer of competencies across business units, therefore, are critical in such firms. In contrast, there are low levels of interdependence among the business units of unrelated diversified firms. This implies that as firms become more diversified, it may be desirable to change the balance in control systems from an emphasis on fostering cooperation to an emphasis on encouraging entrepreneurial spirit.

Strategic Planning. Given the low level of interdependencies, conglomerates tend to use vertical strategic planning systems-that is, business units prepare strategic plans and submit them to senior management to review and approve. Because of the high level of interdependencies, strategic planning systems for related diversified and single industry firms tend to be both vertical and horizontal. The horizontal dimension might be incorporated into the strategic planning process in a number of different ways. First, a group executive might be given the responsibility to develop a strategic plan for the group as a whole that explicitly identifies synergies across individual business units within the group. Second, strategic plans of individual business units could have an interdependence section, in which the general manager of the business unit identifies the focal linkages with other business units and how those linkages will be exploited. Third, the corporate office could require joint strategic plans for interdependent business units. Finally, strategic plans of individual business units could be circulated to managers of similar business units to critique and review.

These methods are not mutually exclusive. In fact, several of them could be pursued fruitfully at the same time.

Example. NEC Corporation, a related diversified firm, adopted two planning systems: a normal business unit planning system and a corporate business plan (Cl3P) system. Strategic plans in the CBP system were prepared for important Programs that cut across business units. It forced interdependent business unit managers to agree on a strategic plan for exploiting such linkages. In effect, the system required a special plan for important horizontal issues.

Budgeting. In a single industry firm, the chief executive officer may know the firm's operations intimately and corporate and business unit managers tend to have more frequent contact. Thus, chief executives of single industry firms may be able to control the operations of subordinates through informal and personally oriented mechanisms, such as frequent personal interactions. If so, this lessens the need to rely as heavily on the budgeting system as the tool of control.

On the other hand, in a conglomerate it is nearly impossible for the chief executive to rely on informal interpersonal interactions as a control tool; much of the communication and control has to be achieved through the formal budgeting system. This implies the following budgeting system characteristics in a conglomerate:

Business unit managers have somewhat greater influence in developing their budgets since they, not the corporate office; possess most of the information about their respective product/market environments.

Greater emphasis is often placed on meeting the budget since the chief executive has no other informal controls available.

Transfer Pricing. Transfers of goods and services between business units are more frequent in single industry and related diversified firms than in conglomerates. The usual transfer pricing policy in a conglomerate is to give sourcing flexibility to business units and use arm's-length market prices. However, in a single industry or a related diversified firm, synergies may be important, and business units may not be given the freedom to make sourcing decisions.

Incentive Compensation. The incentive compensation policy tends to differ across corporate strategies in the following ways:

Use of formulas. Conglomerates, in general, are more likely to use formulas to determine business unit managers bonuses; that is, they may base a larger portion of the bonus on quantitative, financial measures, such as X percent bonus

on actual economic value added (EVA) in excess of budgeted EVA. These formula-based bonus plans are employed because senior management typically is not familiar with what goes on in a variety of disparate businesses.

Senior managers of single industry and related diversified firms tend to base a larger fraction of the business unit managers' bonus on subjective factors. In many related diversified firms, greater degrees of interrelationships imply that one unit's performance can be affected by the decisions and actions of other units. Therefore, for companies wıth highly interdependent business units, formula-based plans that are tied strictly to financial performance criteria could be counterproductive.

Profitability measures. In the case of unrelated diversified firms, the incentive bonus of the business unit managers tends to be determined primarily by the profitability of that unit, rather than the profitability of the firm. Its purpose is to motivate managers to act as though the business unit were their own company.

In contrast, single industry and related diversified firms tend to base the incentive bonus of a business unit manager on both the performance of that unit and the performance of a larger organizational unit (such as the product group to which the business unit belongs or perhaps even the overall corporation). When business units are interdependent, the more the incentive bonus of general managers emphasizes the separate performance of each unit, the greater the possibility of inters unit conflict. On the other hand, basing the bonus of general managers more on the overall corporate performance is likely to encourage greater inter unit cooperation, thereby increasing managers' motivation to exploit interdependencies rather than their individual results.

Example. In Textron, a conglomerate, the most important measure of performance in allocating bonus awards to business unit managers was return on investment of their respective business units. Thus, the incentive bonus system was formula-based tied to a financial criterion, and the bonus depended on the performance of the business unit.

Business Unit Strategy

So far we have discussed variations in control systems across firms, taking Unit the whole firm as our unit of observation. In this section, we consider in trafirm differences in control systems. Diversified corporations segment themselves into business units and typically assign different strategies

to the individual business units. Many chief executive officers of multi business organizations do not adopt a standardized, uniform approach to controlling their business units; instead, they tailor the approach to each business unit's strategy.

Concept of Business Unit Strategy The strategy of a business unit depends on two interrelated aspects: (1) its mission ("what are its overall objectives?") and (2) its competitive advantage ("how should the business unit compete in its industry to accomplish its mission?"). Typically, business units choose from four missions: build, hold, harvest, and divest.

Build. This mission implies an objective of increased market share, even at the expense of short-term earnings and cash flow. Examples are America On Line's Internet media business, IBM's e-solutions, Monsanto's biotechnology, Corning Glass's optical fibers, and Black and Decker's handheld electric tools.

Hold. This strategic mission is geared to the protection of the business unit's market share and competitive position-for example, IBM's mainframe computers.

Harvest. The objective of this mission is to maximize short-term earnings and cash flow, even at the expense of market share. American Brands' tobacco. products and General Electric and Sylvania's light bulbs are examples.

Divest. This mission indicates a decision to withdraw from the business either through slow liquidation or outright sale.

The business unit has two generic ways to compete and develop a sustainable competitive advantage: low cost and differentiation.

Low cost. Cost leadership can be achieved through such approaches as economies of scale in production, experience curve effects, tight cost control, and cost minimization (in such areas as research and development, service, sales force, and advertising). Some firms following this strategy include Charles Schwab in discount brokerage, Wal-Mart in discount retailing, Texas Instruments in consumer electronics, Emerson Electric in electric motors, Hyundai in automobiles, Dell in computers, Black and Decker in machine tools, Nucor in steel, Lincoln Electric in arc-welding equipment, and BIC in pens.

Differentiation. The primary focus of this strategy is to differentiate the product offering of the business unit, creating something that customers perceive as unique. Approaches to product differentiation include brand loyalty (Coca-Cola

and Pepsi Cola in soft drinks), superior customer service (Nordstrom in retailing), dealer net-work (Caterpillar Tractors in construction equipment), product design and product features (Hewlett-Packard in electronics), and technology (Motorola in communications). Other examples of differentiation strategy include Mercedes in automobiles, eBay in auctions, Stouffer's in frozen foods, Neiman-Marcus in retailing, Mont Blanc in pens, and Rolex in wristwatches.

Mission

The mission for existing business units could be either builds, hold, or harvest. These missions constitute a continuum, with "pure build" at one end and "pure harvest" at the other end. To implement effectively, there should be congruence between the mission chosen and the types of controls used. We develop the control-mission "fit" using the following line of reasoning:

---The mission of the business unit influences the uncertainties that general managers face and the short-term versus long-term trade-offs they make.

--- Management control systems can be systematically varied to help motivate the manager to cope effectively with uncertainty and make appropriate short-term versus long-term trade-offs.

--- Thus, different missions often require systematically different management control systems.

Mission and Uncertainty. "Build" units tend to face greater environmental uncertainty than "harvest" units for several reasons:

--- Build strategies typically are undertaken in the growth stage of the product life cycle, whereas harvest strategies typically are undertaken in the mature/decline stage of the product life cycle. Such factors as manufacturing process; product technology; market demand; relations with suppliers, buyers, and distribution channels; number of competitors; and competitive structure change more rapidly and are more unpredictable in the growth stage than in the mature/decline stage.

--- An objective of a build business unit is to increase market share. Since the total market share of all firms in an industry is 100 percent, the battle for market share is a zero-sum game; thus, a build strategy puts a business unit in greater conflict with its competitors than does a harvest strategy. Competitors' actions

are likely to be unpredictable, and this contributes to the uncertainty that build business units face.

--- On both the input side and the output side, build managers tend to experience greater dependencies on external individuals and organizations than do harvest managers. For instance, a build mission signifies additional capital investment (greater dependence on capital markets), expansion of capacity (greater dependence on the technological environment), increase in market share (greater dependence on customers and competitors), increase in production volume (greater dependence on raw material suppliers and labor markets), and so on. The greater the external dependencies a business unit faces, the greater the uncertainty it confronts.

--- Since build business units are often in new and evolving industries, build managers are likely to have less experience in their industries. This also contributes to the greater uncertainty that managers of build units face in dealing with external constituencies.

Mission and Time Span. The choice of build versus harvest strategies has implications for short-term versus long-term profit trade-offs. The share building strategy includes (a) price cutting, (b) major R&D expenditures (introduce new products), and (c) major market development expenditures. These actions are aimed at establishing market leadership, but they depress short-term profits. Thus, many decisions that a build unit manager makes today may not result in profits until some future period. A harvest strategy, on the other hand, concentrates on maximizing short-term profits.

We now discuss how the form and structure of control systems might differ across business units with different missions.

Strategic Planning. While designing a strategic planning process, several design issues need to be considered. A business unit's response to these issues tends to depend upon the mission it is pursuing.

When the environment is uncertain, the strategic planning process is especially important. Management needs to think about how to cope with the uncertainties, and this usually requires a longer-range view of planning than is possible in the annual budget. If the environment is stable, there may be no strategic planning process at all or only a broad-brush strategic plan. Thus, the strategic planning process is more critical and more important for build, as

compared with harvest, business units. Nevertheless, some strategic planning of the harvest business units may be necessary because the company's overall strategic plan must encompass all of its businesses to effectively balance cash flows.

In screening capital investments and allocating resources, the system may be more quantitative and financial for harvest units. A harvest business unit operates in a mature industry and does not offer tremendous new investment possibilities. Hence, the required earnings rate for such a business unit may be relatively high to motivate the manager to search for projects with truly exceptional returns. Since harvest units tend to experience stable environments (with predictable products, technologies, competitors, and customers), discounted cash flow (DCF) analysis often can be used more confidently. The required information used to evaluate investments from harvest units is primarily financial.

A build unit, however, is positioned on the growth stage of the product life cycle. Since the corporate office wants to take advantage of the opportunities in a growing market, senior management may set a relatively low discount rate, thereby motivating build managers to forward more investment ideas to corporate office. Given the product/market uncertainties, financial analysis of some projects from build units may be unreliable. For such projects, non-financial data are more important.

Budgeting. Implications for designing budgeting systems to support varied missions The calculational aspects of variance analysis comparing actual results with the budget identify variances as either favorable or unfavorable. However, a favorable variance does not necessarily imply favorable performance, nor does an unfavorable variance imply unfavorable performance. The link between a favorable or unfavorable variance, on the one hand, and favorable or unfavorable performance, on the other hand, depends upon the strategic context of the business unit under evaluation.

Example. An industrial-measuring-instruments manufacture disaggregated the overall profit variance by key causal factors for its two business units: Electric Meters, a "harvest" business, and Electronic Instruments, a "build" business. Senior management interpreted market share, selling price, and manufacturing cost variances very differently in the performance evaluations of the managers in charge of the harvest and build businesses.

A related issue is how much importance should be attached to meeting the budget when evaluating a business unit manager's performance. The greater the uncertainty, the more difficult it is for superiors to regard subordinates' budget targets as firm commitments and to consider unfavorable budget variances as clear indicators of poor performance. For this reason budgets are relied on less in build units than in harvest units.

Example. The SCM Corporation adopted a two-dimensional yardstick to evaluate business units: bottom-line performance against budget was one dimension, and performance against specific objectives was another. The ratios of the two were made to vary according to the mission of the business unit. For instance, "pure harvest" units were evaluated 100 percent on budget performance; "pure hold," 50 percent on budget and 50 percent on completion of objectives; "pure build," 100 percent on completion of objectives.

The following additional differences in the budget process are likely to exist between build and harvest units:

--- In contrast to harvest units, budget revisions are likely to be more frequent for build units because their product/market environment changes more frequently.

--- Build unit managers may have greater input and influence than harvest unit managers in formulating the budget. This is because “build” managers operate in rapidly changing environments and has better knowledge than senior management of these changes. For harvest units with stable environments, the manager's knowledge is less important.

Incentive Compensation System. In designing an incentive compensation package for business unit managers, the following questions need to be resolved:

1. What should the size of incentive bonus payments be relative to the general manager's base salary? Should the incentive bonus payments have upper limits?

2. What measures of performance (e.g., profit, EVA, sales volume, market share, product development) should be used when deciding the general manager's incentive bonus awards? If multiple performance measures are employed, how should they be weighted?

3. How much reliance should be placed on subjective judgments in deciding on the bonus amount?

4. How frequently (semiannual, annual, biennial, and so on) should incentive awards be made?

The mission of the business unit influences decisions on these designs variables). With respect to the first question, many firms use the principle that the riskier the strategy, the greater the -proportion of the general manager's compensation in bonus compared to salary (the "risk/return" principle). They maintain that since managers in charge of more uncertain task situations should be willing to take greater risks, they should have a higher percentage of their remuneration in the form of an incentive bonus. Thus, "build" managers are more likely than "harvest" managers to rely on bonuses.

As to the second question, when rewards are tied to certain performance criteria, behavior is influenced by the desire to optimize performance with respect to those criteria. Some performance criteria (cost control, operating profits, and cash flow from operations) focus more on short-term results, whereas other performance criteria (market share, new product development, market development, and people development) focus on long-term profitability. Thus, linking incentive bonus to short-term criteria tends to promote a short-term focus on the part of the general manager and, similarly, linking incentive bonus to long-term criteria is likely to promote long-term focus. Considering the relative differences in time horizons of build and harvest managers, it may not be appropriate to use a single, uniform financial criterion, such as operating profits, to evaluate the performance of every business unit. A better idea would be to use multiple performance criteria, with differential weights for each criterion depending on the business unit's mission.

Examples. Analog Devices and General Electric Company tailor compensation packages to the different missions of their individual businesses.

Analog Devices designed a bonus system for its business units (SBUs) based on each unit's potential for growth and profit. For instance, a business unit in the test-instrument market faced considerably different conditions and competition from those faced by a business unit in the microprocessor market. While some SBUs may not have much growth potential, they might have the ability to deliver high Return on Assets (ROA); other SBUs would be able to generate very high growth but deliver lower ROA. For SBUs pursuing a "harvest" strategy, greater weight was placed on ROA and lower weight on sales

growth in determining the SBU manager's bonus. For "build" SBUs, on the other hand, bonuses were weighted more heavily on sales growth and less on ROA.

GE had matured as well as young businesses. In the mature businesses, short-term incentives might dominate the compensation packages of managers who were charged with maximizing cash flow, achieving high profit margins, and retaining market share. In the younger businesses, where developing products and establishing marketing strategies were most important, non-financial measures geared to executing long-term performance might dictate the major portion of managers' remuneration.

The third question asks how much subjective judgment should affect bonus amounts. At one extreme, a manager's bonus might be a strict formula based plan, with the bonus tied to performance on quantifiable criteria (e.g., X percent bonus on actual profits in excess of budgeted profits). At the other extreme, a manager's incentive bonus amounts might be based solely on the superior's subjective judgment or discretion. Alternatively, incentive bonus amounts might also be based on a combination of formula-based and subjective approaches. Performance on most long-term criteria (market development, new product development, and people development) is harder to measure objectively than is performance along most short-run criteria (operating profits, cash flow from operations, and return on investment). Since, as already noted, build managers, in contrast with harvest managers, should concentrate more on the long run, they typically are evaluated more subjectively than are harvest managers. The following examples from 3M and Xerox illustrate the need to have loose controls over business units that focus on innovation and growth.

Examples: At 3M, technical staff are encouraged to spend 15 percent of their time "bootlegging"-working on pet ideas that they hope will one day become new products for the company. Not only do they get time off to pursue these ideas, but they can also get money to buy equipment or even hire extra help.

Xerox set up Xerox Technology Ventures (XTV) with less-vigorous financial controls to exploit ideas developed at the company's Palo Alto Research Center. By 1999, XTV had established more than a dozen units to pursue new product concepts.

As to the final question, the frequency of bonus awards does influence the time horizon of managers. More frequent bonus awards encourage managers to concentrate on short-term performance by motivating them to focus on those

facets of the business that they can affect in the short run. Calculating and paying bonuses less frequently encourage managers to take a long-term perspective. Thus, build managers tend to receive bonus awards less frequently than harvest managers.

Example. Premark International used a similar logic in designing the incentive bonus for the general manager of its Tupperware Division, whose mission was to build market share: 11f you award the bonus annually], Tupperware could reduce advertising and promotional activities and you can look good in profits that year Then, the franchise starts to go to hell. If you're shooting for an award after three years, there's less tendency to do things short term."

Competitive Advantage

A business unit can choose to compete either as a differentiated player or as a low-cost player. Choosing a differentiation approach, rather than a low-cost approach increases uncertainty in a business unit's task environment for three reasons. First, product innovation is more critical for differentiation business units. This is partly because a differentiation business unit focuses primarily on uniqueness and exclusivity, which require greater product innovation, whereas a low-cost business unit, with its primary emphasis on reducing cost, typically prefers to keep its product offerings stable over time. A business unit with greater emphasis on new product activities tends to face -greater uncertainty, since the business unit is betting on unproven products.

Second, low-cost business units typically tend to have narrow product lines to minimize inventory carry costs and benefit from scale economies. Differentiation business units, on the other hand, tend to have a broader set of products to create uniqueness. Product breadth creates high environmental complexity and, consequently, higher uncertainty.

Third, low-cost business units typically produce no-frill commodity products, and these products succeed primarily because they are priced lower than competing products. However, products of differentiation business units succeed if customers perceive that they offer advantages over competing products. Since customer perception is difficult to learn about and customer loyalty can change for a number of reasons, it's more difficult to predict the demand for differentiated products than the demand for commodities.

The specifies of the control systems for low-cost and differentiation business units are similar to those described earlier for harvest and build business units. This is because the uncertainty facing low-cost and differentiation business units is similar to the uncertainty facing-a harvest and builds business units.

Example: A broad-based chemicals manufacturer used differentiated management control, focusing on the different key success factors for its yellow dye unit, which followed a cost leadership strategy, and its red dye unit, which followed a differentiation strategy. The manager in charge of yellow dye was tightly held to theoretical standard costs rather than currently achievable standard costs. The results of these tight financial controls were remarkable. Within a period of two years, actual cost for yellow dye decreased from $5.72 per lb. to $3.84 per lb., giving the yellow dye unit a major cost advantage. The key strategic issue for red dye was product differentiation, not cost leadership. The management control reports for the red dye unit, therefore, focused on product leadership variables (e.g., milestone reporting on the development project for hot spray dyeing) rather than cost control variables.

Senior managers at one large, high-tech manufacturer took direct responsibility for adding customer satisfaction, quality, market share, and human resources to their formal measurement system. The impetus was their realization that the company's existing system, which was largely financial, undercut its strategy, which focused on differentiation through customer service."

Top Management Style.

The management control function in an organization is influenced by the style of senior management. The style of the chief executive officer affects the management control process in the entire organization. Jeff Bezos at Amazon.com, Steve Case at AOL, John Chambers at Cisco, Jack Welch at General Electric, Harold Geneen at ITT, and Percy Barnevik at ABB are well-publicized examples. Similarly, the style of the business unit manager affects the unit's management control process, and the style of functional department managers affects the management control process in their functional areas. If feasible, designers should consider management style in designing and operating control systems. (If chief executive officers actively participate in system design, as should be the case, the system will reflect their preferences.)

Differences in Management Styles

Managers manage differently. Some rely heavily on reports and certain formal documents; others prefer conversations and informal contacts. Some think in concrete terms, others think abstractly. Some are analytical, others use trial and error. Some are risk takers, others are risk averse. Some are process-oriented, others are results-oriented. Some are people-oriented, others are task-oriented. Some are friendly, others are aloof some are long-term oriented, others are short-term-oriented. Some dominate decision-making ("Theory X7), others encourage organization participation in decision-making ("Theory Y"). Some emphasize monetary rewards; others emphasize a broader set of rewards.

Management style is influenced by the manager's background and personality. Background includes things like age, formal education, and experience in a given function, such as manufacturing, technology, marketing, or finance. Personality characteristics include such variables as the manager's willingness to take risks and his or her tolerance for ambiguity.

Implications for Management Control

The various dimensions of management style significantly influence the operation of the control systems. Even if the same reports with the same set of data go with the same frequency to the CEO, two CEOs with different styles would use these reports very differently to manage the business units. The dramatic shift in the control process within General Electric when Jack Welch succeeded Reginald Jones as the CEO, as described in Chapter 2, vividly illustrates this point.

Style affects the management control process-how the CEO prefers to use the information, conducts performance review meetings, and so on which, in turn, affects how the control system actually operates, even if the formal structure does not change under a new CEO. In fact, when CEOs change, subordinates typically infer what the new CEO really wants based on how he or she interacts during the management control process (e.g., whether performance reports or speeches and directives take precedence).

Personal versus Impersonal Controls. Presence of personal-versus impersonal controls in organizations is an aspect of managerial style. Managers differ on how much importance they attach to formal budgets and reports as well

as informal conversations and other personal contacts. Some managers are "numbers-oriented"; they want a large flow of quantitative information, and they spend much time analyzing this information and deriving tentative conclusions from it. Other managers are "people-oriented"; they look at a few numbers, but they usually arrive at their conclusions by talking with people, judging the relevance and importance of what they learn partly on their appraisal of the other person. They visit various locations and spend time talking with both supervisors and staff to get a sense of how well things are going.

Managers' attitudes toward formal reports affect the amount of detail they want, the frequency of these reports, and even their preference for graphs rather than tables of numbers, and whether they want numerical reports supplemented with written comments. Designers of management control systems need to identify these preferences and accommodate them.

Tight versus Loose Controls. A manager's style affects the degree of tight versus loose control in any situation. The manager of a routine production responsibility center can be controlled relatively tightly or loosely, and the actual control reflects the style of the manager's superior. Thus, the content of the forms or aspects of the formal control documents, rules, or procedures often do not reveal the degree of tightness or looseness. It is a factor of how these formal devices are used.

The degree of looseness tends to increase at successively higher levels in the organization hierarchy: higher-level managers typically tend to pay less attention to details and more to overall results (the bottom line, rather than the details of how the results are obtained). However, this generalization might not apply if a given CEO has a different style.

Example. The classic illustration of this point is ITT under Harold Geneen. One could argue that ITT, being a conglomerate, should be managed based on monitoring the business unit bottom line and not through a detailed evaluation of every aspect of the business unit operations.

REVIEW QUESTIONS

1) How will you link the three levels of management with the three levels of decision-making?

2) What is strategic planning? Distinguish it from management control.

3) What is operational control? How does it differ from management control?

4) Explain, in detail, the inter-relationship among strategic planning, operational control and management control.

5) What are the different types of controls used in management control systems?

6) Explain the nature of and reason for variations in controls?

7) Explain the different aspects of management control process.

8) Write short notes on

   (a) The Law of Requisite Variety

   (b) The Black Box Technique.

9) Explain the meaning of the term 'Goals', How do they differ from objectives?

10) What do you understand by 'Strategies'? Are Policies and Charters of a business being called Strategies?

11) How will you formulate and evaluate the strategy of a car-manufacturing firm?

12) Explain the nature of key variables. List out some of the important key variables in production and marketing of electronic goods.

Unit - 4

Management Control Structure - Expense control - Profit centers Transfer pricing -Investment centers - Management control process Programming and budgeting -Analyzing reporting - Performance evaluation.

Management And Control Structure

Responsibility Centers and Their Identification

According to Shillinglaw, ''Responsibility center is an organization unit headed by a single person (sometimes by a committee), answerable to higher authority and obliged to perform certain tasks", It refers to departmental or sectional classification of a business in such a manner that the responsibility is fixed on the departmental or sectional head for the target fixed in respect of that department or section. Responsibility Centres can be classified as (a) Revenue Centres, (b) Profit Centres, (c) Cost Centres and (d) Investment Centres. In a Profit Centre, targets may be fixed in terms of Profit. This is possible only if the department's output can be measured in terms of Revenue. If a department's output is neither feasible nor necessary to be measured in terms of revenue (for example, Accounting Department, Research and Development Department, Law Department etc.), it can be referred to as a Cost Centre. For such centres a system of accounting is designed to measure only the expenses incurred by each centre. An Investment Centre is a responsibility centre in which the manager is held responsible for the use of assets as well as for revenues and expenses. His performance is evaluated in the light of target fixed for the rate of return on investment.

The targets for the various Responsibility Centres may be evolved keeping in view the nature of the Responsibility Centre as well as overall objectives of the business. In identifying responsibility centres in an organization, five broad considerations may be kept in view.

1. A manager should be responsible for attaining results in relation to operations within the responsibility centre.

2. It should be possible to measure. Clearly the inputs required by the responsibility centre. The inputs may be the cost of raw materials, supp. es, power and fuel, machinery, men etc.

3. If the responsibility centre is a profit centre, the value of its output e.g., the finished products, assemblies, intermediate products or services produced by it, should be measurable as far as possible in terms of revenue.

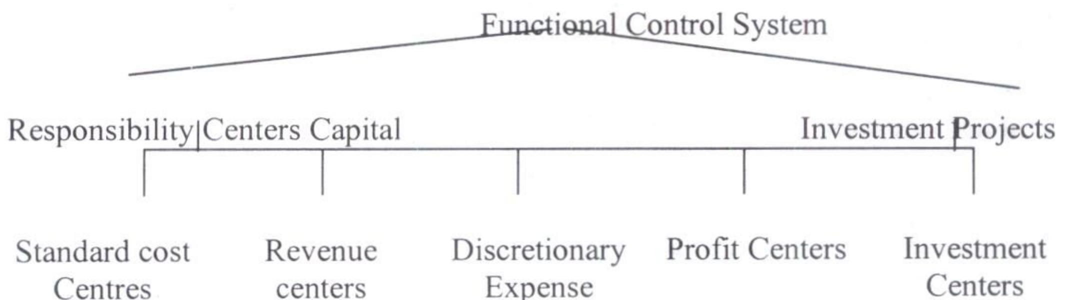
4. The method of operation in the responsibility centre, through which the inputs are converted into desired outputs, should be distinct for the responsibility centre. We may call it the conversion process or technology employed by the responsibility centre.

5. The units within the organization or external markets served by the responsibility centre should be clear and distinct so that the management can easily measure the value of goods and services provided by the responsibility centre in the form of output, and its value to the receiving unit or the market.

Control can be effective only if a manager has authority over his department and each manager in this way is accountable to some authority or the other. The manager's authority and responsibility in respect of a responsibility centre should be clearly defined; otherwise no control can be exercised over him. Also he cannot exercise control over others. Duality of authority and responsibility is virtually responsibility to none, which will weaken a control system. Further, each responsibility centre should be coded, as this will facilitate the collection an "rrangement of information generated from various sources.

Management Control Structure

The financial responsibilities are delegated to the departmental or divisional managers. It is also necessary, then to evelve a control structure so that the divisions entrusted with financial responsibility am constrained to discharge their duties towards fulfillment of the overall objectives. WN tree below depicts the types into w hich a financial control system can be divided.



All these responsibility centers would have certain inputs and certain outputs. There exists some relationship between inputs and outputs. The divisional manager-in-charge of a responsibility center can manipulate some of these inputs at least, to achieve greater or optimal output to be noted that the projects has discrete beginning and discrete end over time basis, whereas, the responsibility centers have usually indefinite time.

Critical Variables: A critical variable is that aspect of the operation at the responsibility center which if carried out ineffectively, the realization of the of the organisation will be adversely affected irrespective of the fact that operations in the organisation are being performed effectively and efficiently

For example, in a textile mill the 'Waste' ratio in spinning process, and in weaving and finishing of cloth are considered as critical variables. Point selected for control should be critical in the sense either of being factors in the operation or of showing better than other factors whether e working out. With such critical points a manager can handle a larger up of subordinates and activities and thereby increase his span of management, effect cost savings and improve communication.

Developing System for Information Collection and its Analysis

Information is a pre-requisite for control. The word 'Information' means data relevant for a particular purpose. Any data relevant to a manager for the purpose of control would constitute information for him. Information about critical variable is a must for managerial control purposes. A piece of information if conveyed properly and understood correctly would add to the knowledge of the recipient. When a person gains knowledge he is prompted to act. In the case of a manager he is prompted to take control action. Such information could be obtained either through a formal system or through grape-vine. However, as companies grow, Tanagers become more dependent on formal rather than on informal systems. Further, the formal systems provide a crutch for the orderly succession of management. As such the emphasis is on the development of formal information systems.

The formal information system should be so structured that it (i) provides regular collection of data regarding each and every responsibility centre, (ii) yields processed and summarized data and (iii) presents the relevant information to managers for control as and when needed. The task of operating the information system is entrusted to management information services department

within a control system. Further, the function of tabulating the targets framed, conveying information on targets, collection and comparison of data regarding actual performance with the targets and reporting of variations periodically to the concerned managers is usually assigned to the accounting department. The accounting department should keep records in such a way that cost and revenue data are collected, summarized and presented along with variations both by product, department and by responsibility. The product-wise data are used for determining product-wise profitability, and for exercising activity control whereas the responsibility-wise data are used to measure the performance of the heads of responsibility centres. The information collected and reported responsibility centre-wise, produces below stated intangible effects some of which are intentional and some unintentional:

(i) They may prepare employees to investigate the causes and take suitable corrective action.

(ii) They may instill attitudes of loyalty and pride of accomplishment.

(iii) They may prompt the superior to locate those activities and people in the organisation in need of help so that assistance can be rendered and the scarce resources of the firm can be most effectively utilized.

(iv) They may affect the image of the whole organisation that is perceived by the outside world.

Concept of Responsibility Accounting

Responsibility accounting is a system under which manager's arc given decision-making authority and the responsibility for each activity occurring within a specific area of an organisation. Under this system, managers are made responsible for the activities of their organizational segments called divisions or departments, etc.

Robert N. Anthony defines responsibility accounting as that type of management accounting that collects and reports both planned and actual accounting information in terms of responsibility center. Another definition is that responsibility accounting is a, system of accounting, which is tailored to, and organisation so that costs are accumulated and reported by levels of responsibility within the organisation. Each supervisory area in the organization is charged only with the cost for which it is responsible and over which it has control. According to Charles T. Horngren, responsibility accounting is a system

that recognizes various decisions or responsibility centers, throughout the organisation and traces costs (and revenue, assets and liabilities where pertinent) to the individual managers who are primarily responsible for making decisions about the costs in question.

Steps for Control through Responsibility Accounting

Following steps are necessary to effect control through the Responsibility Accounting:

(a) Plan the whole activity of the responsibility area:

(b) Set up budgets, standards, and estimates for the execution of the plan

(c) Divide the plan into self-contained units and allocate them to the responsibility centers, with the detailed instruction necessary for correct execution:

(d) Evaluate the actual performance of each responsibility center and compare the actual results with the budgeted estimates or the standards set, and to work out the variances:

(e) Analyze the variances fix up responsibility for the variances upon the responsibility centers, and take corrective measures.

The personal factor in responsibility accounting is- most important, the management may prepare the best plan or the budget and put before it-, staff, but its success depends upon the initiative and the will of the workers to execute it. In order to implement this system of accounting/reporting, it is necessary that

i) the plans should be prepared in consultation with the persons, responsible for it;

ii) the targets fixed should be precise, clear and realistic;

iii) the plans and their method of execution should be made clear to staff,

iv) the staff should be trained properly in the work required of them: and Plan the whole activity of the responsibility area;

v) due incentives and encouragements should be should be provided to the persons working well. In other words, there should be a system of reward or executive compensation to provide incentives for the (executives to attain higher levels of performance.

The Principal Types of Financial Responsibility- Responsibility It may be divided into for categories: (i) Expense Centers, (ii) Revenue centers, (iii) Profit Centers and (iv) Investment Centers or Asset Centers. In responsibility centers the targets may be in terms of cost, cost and revenue or nets; in certain responsibility centers, the output may be in physical Instead of values. All the more, they are also responsibility centers.

Expense Centers also known discretionary expense an be formed by dividing the whole organisation in to a number of division for whom a standard amount of expense to be incurred is mind and the performance of each is appraised by comparing the amount with the standard amount. Each division is recognized as a center. It is also sometimes termed as the cost center. Certain such as legal department, personnel department (i.e., Service function) can only be cost centers because it is neither possible nor to measure the output in terms of monetary units. This approach emphasizes that the performance of certain division should be measured against specific cost standards.

Revenue Centre: A revenue centre is primarily responsible for marketing or selling products or services e.g., a given sales territory or geographical division. The primary responsibility of the center's manager would be to raise revenue through sales. Administrative selling could also be involved. However, such cost would be secondary, and would normally be expected to occur in proportion to revenue.

Profit Centre: The entire organisation is divided into a number of divisions and each division is treated as a profit centre. It is responsible for generating a specified quantum of profits from its activities. The performance of each division being judged in terms of both the income that is earned and costs't6at are incurred. It is an important system of control in large undertakings where each divisional manager is given a profit objective and the performance is measured accordingly. It is also sometimes termed as the 'Contribution Centre' or 'Financial Performance Centre.' In non-profit organisation, the term 'revenue centre' is used in the place of profit centre. Thus the profit centre approach emphasizes that the performance of certain divisions should be measured against specified profit target.

A profit center is an entity for accounting and control purposes that is responsible for a particular group of products and all revenue and most or all expenses associated with these products. Profit Centres may be a division of a

large firm that are separately incorporated, and have their own 'book' and financial statement. Profit centres are essentially established for one of three reasons:

1) Cost-benefit decisions and trade-offs are delegated to manager close to the sources of necessary information. These managers can often make better decisions than their superiors, who are more remote from necessary information sources.
2) It is believed that manager will do a better job (be more highly motivated) if they can identify their own personal business, and that there will be a greater goal congruence with the profit objectives of top management.
3) A profit center will provide good experience and act as a training ground for future top management.

The output of a responsibility centre may either be meant for internal consumption or for outside customers. In the latter case the revenue is realized when the sales are made. However, in case of internal transfers, responsibility centre is a profit centre only when the management decides to measures its output in monetary terms. For example, in case of a process industry the output of one process/division may be transferred as raw material (input) for another process/division at a price called 'transfer price'. Transfer Pricing is the notional price at which the output of one department i n' a factory is transferred to another. This facilitates the preparation of separate departmental profit and loss account. It should be clearly understood that such internal transfers do not increase the company's assets b definitely help sometimes in the management control process

Responsibility Accounting for Service Centres

It is apparent from the above discussion that a responsibility unit can be planned and controlled as a cost, revenue profit, investment centre, depending on the scope of decision making authority delegated to the unit. This range of authority is the most important factor in the choice of a monetary performance measurement. Cost, revenue profit and investment centres usually coincide with the allocation of authority for decisions over cost, revenues and investment respectively. The purpose is to explore the possibility of treating service departments as profit centres and hence to measure the performance of these units on the basis of profit, which are otherwise generally being treated as cost

centres and evaluated on the basis of how well it succeeds in keeping down the cost.

It may well be argued the utility of measuring the performance of a service department on the basis of; profit. The answer is obvious. Firstly, profit is the most objective basis for measuring the performance of any manager and profit responsibility is powerful motivators of man. Managers understand what profit is all about, and aggressive managers welcome the opportunity to have their abilities measured by the only real entrepreneurial yardstick. Secondly, income is the prime motivating factor of running business and it is assumed that the income is generated by the continuous operation of the total firm. Hence every attempt is to be made to assess the contribution of each segment to the overall profit objective of the firm and to determine the center where from income generates. Economically and practically

Thirdly, it is not a very impractical suggestion. As a matter of fact, it is easy to find many independent business concerns, which sell only services as, for example, electricity, transportation, legal assistance, cleaning or research. Thus, it is suggested that the service departments whenever possible are to be considered as profit centres instead of cost centres. Under the present accounting practices, it is assumed that the service department "sells" its services at a predetermined standard price. This procedure implies that if costs are kept down, "profit" will emerge. Under conventional standard cost accounting, the "profits" are termed as favorable variance. When the standard price is based on market price or even on a pseudo market price, there is no material difference between two centres.

When there is market for the service, there is no problem in assigning transfer prices and considering the service activity as a profit centre. When a regular market does not exist, management can search for a market and market price.

Advantages of Responsibility Accounting

a) Responsibility accounting is an effective tool of cost control and cost reduction applied with budgetary control and standard costing.

b) Accounting information provided by the system of responsibility accounting is used by the top management as -an aid in planning and

controlling the activities of responsibility centres and in motivating the persons responsible for carrying out these activities.

c) It facilitates the fixing of divisional responsibilities.

d) It assists in the evaluation of performance job wise and total monthly and annual performance. It permits an objective evaluation of the performance of individual managers / divisions.

RESPONSIBILITY CENTERS: REVENUE AND EXPENSE CENTERS

Management control focuses on the behavior of managers in responsibility centers. A responsibility center is an organization unit that is headed by a manager who is responsible for its activities. In a sense, a company is a collection of responsibility centers, each of which is represented by a box on the organization chart. These responsibility centers form a hierarchy. At the lowest level are the centers for sections, work shifts, and other small organization units. Departments or business units comprising several of these smaller units are higher in the hierarchy. From the standpoint of senior management and the board of directors, the entire company is a responsibility center, though the term is usually used to refer to units within the company.

Nature of Responsibility Centers

A responsibility center exists to accomplish one or more purposes, termed its objectives. The company as a whole has goals, and senior management decides on a set of strategies to accomplish these goals. The objectives of the company's various responsibility centers are to help implement these strategies. Because every organization is the sum of its responsibility centers, if each responsibility center meets its objectives, the goals of the organization will have been achieved.

Responsibility centers-receive inputs, in the form of materials, labor, and services. Using working capital (e.g., inventory, receivables), equipment, and other assets, the responsibility center performs its particular function, with the ultimate objective of transforming its inputs into outputs; either tangible (i.e., goods) or intangible (i.e., services). In a production plant, the outputs are goods. In staff units, such as human resources, transportation, engineering, accounting, and administration, the outputs are services.

The products (i.e., goods and services) produced by a responsibility center may be furnished either to another responsibility center, where they are inputs, or to the outside marketplace, where they are outputs of the organization as a whole. Revenues are the amounts earned from providing these outputs.

Relation between Inputs and Outputs

Management is responsible for ensuring the optimum relationship between inputs and outputs. In some centers, the relationship is causal and direct, as in a production department, for example, where the inputs of raw material become a physical part of the finished goods. Here, control focuses on using the minimum input necessary to produce the required output according to the correct specifications and quality standards, at the time requested, and in the quantities desired.

Measuring Inputs and Outputs

Much of the input that responsibility centers use can be stated as physical measurements-hours of labor, quarts of oil, reams of paper, and kilowatt-hours of electricity. In a management control system these quantitative amounts are translated into monetary terms; money is a common denominator that allows the value of several different resources to be combined or compared. The monetary value of a given input is ordinarily calculated by multiplying a physical quantity by a price per unit (e.g., hours of labor times a rate per hour). The resulting monetary sum is called "cost"; this is the way a responsibility center's input is commonly expressed. Cost is a monetary measure of the amount of resources used by a responsibility center.

Note that inputs are resources used by the responsibility center. Patients in a hospital or students in a school are not inputs. Rather, inputs are the resources that the hospital or school uses to accomplish the objective of treating the patients or educating the students.

Efficiency and Effectiveness

The concepts of input, output, and cost can be used to explain the meaning of efficiency and effectiveness, which are the two criteria by which the performance of a responsibility center is judged. These terms are almost always used in a comparative, rather than an absolute, sense. We do not ordinarily say that Responsibility Center A is 80 percent efficient; instead, we say that it is more (or less) efficient than its competitors, more (or less) efficient now than it

was in the past, more (or less) efficient compared to its budget, or more (or less) efficient than Responsibility Center B.

Efficiency is the ratio of outputs to inputs, or the amount of output per unit of input. Responsibility Center A is more efficient than Responsibility Center B if it (1) uses fewer resources than Responsibility Center B but produces the same output, or (2) uses the same amount of resources but produces a greater output.

Note that the first criterion does not require that output be quantified; it is only necessary to judge that the outputs of the two units are approximately the same; if so, assuming both centers are performing their jobs in a satisfactory manner and the respective jobs are of comparable magnitude, the unit with the lower inputs (i.e., lower costs) is the more efficient. In the second criterion, however, where the input is the same but the output differs, some quantitative measure of output is required; this is a more difficult calculation.

In many responsibility centers, efficiency is measured by comparing actual costs with some standard of what those costs should have been at the measured output. Though this method can be somewhat useful, it has two major flaws: (1) recorded costs are not precise measures of the resources actually consumed; and (2) the standard is merely an approximation of what ideally should have happened under the prevailing circumstances.

In contrast to efficiency, which is determined by the relationship between input and output, effectiveness is determined by the relationship between a responsibility center's output and its objectives. The more this output contributes to the objectives, the more effective the unit. Since both objectives and outputs are difficult to quantify, effectiveness tends to be expressed in subjective, non-analytical terms, e.g., "College A is doing a first-rate job, but College B has slipped somewhat in recent years."

Efficiency and effectiveness are not mutually exclusive; every responsibility center ought to be both efficient and effective-in, which case, the organization ought to be meeting its goals in an optimum manner. A responsibility center, which carries out its charge with the lowest possible consumption of resources, may be efficient, but if its output fails to contribute adequately to the attainment of the organizations' goals, it is not effective., If a credit department handles the paperwork connected with delinquent accounts at a low cost per unit, it is efficient; but if, at the same time, it is unsuccessful in

making collections (or needlessly antagonizes customers in the process), it is ineffective.

In summary, a responsibility center is efficient if it does things right, and it is effective if it does the right things.

The Role of Profit. A major objective of any profit-oriented organization is to earn a satisfactory profit. Thus, profit is an important measure of effectiveness. Furthermore, since profit is the difference between revenue (a measure of output) and expense (a measure of input), it is also a measure of efficiency. Thus, profit measures both effectiveness and efficiency. When such an overall measure exists, it is unnecessary to determine the relative importance of effectiveness versus efficiency. When such a measure does not exist, however, it is feasible and useful to classify performance measures as relating either to effectiveness or to efficiency. But this kind of situation has the problem of balancing two types of measurements. How, for example, does one compare the profligate perfectionist, who may be effective but not efficient, with the frugal manager, who uses less input but produces less than the optimum output?

Responsibility Centers-Elements

There are four types of responsibility centers, classified according to the nature of the monetary inputs and/or outputs that are measured for control purposes: revenue centers, expense centers, profit centers, and investment centers. In revenue centers, output is measured in monetary terms; in expense centers, inputs are so measured; in profit centers, both revenues (output) and expenses (input) are measured; and in investment centers, the relationship between profit and investment is measured.

Each type of responsibility center requires a different planning and control system. In the remainder of this chapter we briefly review the planning and control techniques used in revenue centers, and then move on to a more extensive discussion of the techniques used in expense centers. Revenue In a revenue center, output (i.e., revenue) is measured in monetary terms, but Centers no formal attempt is made to relate input (i.e., expense or cost) to output. (If expense were matched with revenue, the unit would be a profit center.) Typically revenue centers are marketing (sales units that do not have authority to set selling prices and are not charged for the cost of the goods they market. Actual sales or orders booked are measured against budgets or quotas, and the manager

is held accountable for the expenses incurred directly within the unit; but the primary measurement is revenue.

Expense Centers

Expense centers are responsibility centers whose inputs are measured in monetary terms, but whose outputs are not. There are two general types of expense centers: engineered and discretionary. These labels relate to two types of cost. Engineered costs are those for which the "right" or "proper" amount can be estimated with reasonable reliability-for example, a factory's costs for direct labor, direct material, components, supplies, and utilities. Discretionary costs (also called managed costs) are those for which no such engineered estimate is feasible. In discretionary expense centers, the costs incurred depend on management's judgment as to the appropriate amount under the circumstances.

Engineered Expense Centers

Engineered expense centers have the following characteristics:

- Their input can be measured in monetary terms.
- Their output can be measured in physical terms.
- The optimum dollar amount of input required to produce one unit of output can be determined.

Engineered expense centers are usually found in manufacturing operations. Warehousing, distribution, trucking, and similar units within the marketing organization may also be engineered expense centers, as may certain responsibility centers within administrative and support departments, for instance, accounts receivable, accounts payable, and payroll sections in the controller department; personnel records and the cafeteria in the human resources department; shareholder records in the corporate secretary department; and the company motor pool. Such units perform repetitive tasks for which standard costs can be developed. These engineered expense centers are usually located within departments that are discretionary expense centers.

In an engineered expense center, output multiplied by the standard cost of each unit produced measures what the finished product should have cost. The difference between the theoretical and the actual cost represents the efficiency of the expense center being measured.

Discretionary Expense Centers

Discretionary expense centers include administrative and support units (e.g., accounting, legal, industrial relations, public relations, human resources), research and development operations, and most marketing activities. The output of these centers cannot be measured in monetary terms.

The term "discretionary" does not imply that management's judgment as to optimum cost is capricious or haphazard. Rather it reflects management's decisions regarding certain policies: whether to match or exceed the marketing efforts of competitors; the level of service the company should provide to its customers; and the appropriate amounts to spend for R&D, financial planning, public relations, and a host of other activities.

One company may have a small headquarters staff, while another company of similar size and in the same industry may have a staff 10 times as large. The senior managers of each company may each be convinced that their respective decisions on staff size are correct, but there is no objective way to judge which (if either) is right; both decisions may be equally good under the circumstances, with the differences in size reflecting other underlying differences in the two companies.

Furthermore, management's view as to the proper level of discretionary costs is always subject to change--especially when new management takes over.

In a discretionary expense center, the difference between budget and actual expense is not a measure of efficiency. Rather, it is simply the difference between the budgeted input and the actual input, and does not incorporate the value of the output. If actual expenses do not exceed the budget amount the manager has "lived within the budget"; but since, by definition, the budget does not purport to predict the optimum amount of spending, living within the budget does not necessarily indicate efficient performance.

General Control Characteristics

Budget Preparation. Management makes budgetary decisions for discretionary expense centers that differ from those for engineered expense centers. For the latter, it decides whether the proposed operating budget represents the unit cost of performing its task efficiently. Its volume is not a major concern; this is largely determined by the actions of other responsibility centers-for instance, the marketing department's ability to generate sales. By

contrast, management formulates the budget for a discretionary center by determining the magnitude of the job that needs to be done.

The work done by discretionary expense centers falls into two general categories: continuing and special. Continuing work is done consistently from year to year, such as the preparation of financial statements by the controller's office. Special work is a "one-shot" project-for example, developing and installing a profit-budgeting system in a newly acquired division.

A technique often used in preparing a discretionary expense center's budget is management by objectives, a formal process in which a budgetee proposes to accomplish specific jobs and suggests the measurement to be used in performance evaluation.

The planning function for discretionary expense centers is usually carried out in one of two ways: incremental budgeting or zero-base review.

Incremental Budgeting. In this model, the discretionary expense center's current level of expenses is taken as a starting point. This amount is adjusted for inflation, anticipated changes in the workload of continuing job, special job, and-if the data are readily available-the cost of comparable jobs in similar units.

Incremental budgeting has two drawbacks. First, the discretionary expense center's current level of expenditure is accepted and not reexamined during the budget preparation process. Second, managers of these centers typically want to increase the level of services, and thus tend to request additional resources, which-if they make a sufficiently strong case-are usually provided. This tendency is expressed in Parkinson's Second Law: Overhead costs tend to increase, period. There is ample evidence that not all of this upward creep is necessary; when a company faces a crisis or when a new management takes over, overhead costs are sometimes drastically reduced without any adverse consequences.

Despite these limitations, most budgeting in discretionary expense centers is incremental. Time does not permit more thorough analysis.

Zero-Base Review. An alternative budgeting approach is to make a thorough analysis of each discretionary expense center on a rolling schedule, so that all are reviewed at least once every five years or so. Such an analysis is often called a zero-base review.

In contrast with incremental budgeting, this intensive review attempts to ascertain, de novo, that is, from scratch, the resources actually required to carry out each activity within the expense center. This analysis establishes another new base, at which point the annual budget review simply attempts to keep costs reasonably in line with this base until the next review takes place, five years down the line. It is expected that expenses will creep up gradually during the interval, and this is tolerated.

Certain basic questions are often raised in the course of this analysis: (1) should the function under review be performed at all? Does it add value from the standpoint of end use customers? (2) What should the quality level be? Are we doing too much? (3) Should the function be performed in this way? (4) How much should it cost?

Information from other sources, including similar units within the company, trade associations and other outside organizations, and companies in other industries with superior performance (i.e., via benchmarking) is often useful for comparison purposes. Such comparisons may raise the interesting question: If Company X can get the job done for Y dollars, why can't we?

It is important to note, however, that achieving comparability is a difficult matter, as is determining a "correct" relationship between cost and output in a discretionary cost situation-not to mention the problems inherent in adopting an outside average as the standard.

Zero-base reviews are time-consuming, and they are likely to be traumatic for the managers whose operations are being reviewed (this is one reason for scheduling such reviews so infrequently). Also, managers will not only do their best to justify their current level of spending, but may also attempt to thwart the entire effort, regarding the zero-base review as something to be put off indefinitely in favor of "more pressing business." If all else fails, they will sometimes cast sufficient doubt on the inquiry's findings as to render them inconclusive, with the result that the status quo prevails.

In the later 1980s and the 1990s, many companies conducted zero-base reviews, usually as a reaction to a downturn in profitability. These efforts were often called downsizing, or, euphemistically, rightsizing or restructuring, or process reengineering.

Cost Variability. Unlike costs in engineered expense centers, which are strongly affected by short-run volume changes, costs in discretionary expense centers are comparatively insulated from such short-term fluctuations. This difference stems from the fact that in preparing the budgets for discretionary expense centers, management tends to approve changes that correspond to anticipated changes in sales volume g., allowing for additional personnel when volume is expected to increase, and for layoffs or attrition when volume is expected to decrease. Since personnel and personnel-related costs are by far the largest expense items in most discretionary expense centers, the annual budgets for these centers therefore tend to be a constant percentage of budgeted sales volume.

Furthermore, once managers of discretionary expense centers hire additional personnel or plan for attrition in accordance with the approved budget, it is uneconomical for them to adjust the work force for short-run fluctuations; hiring and training personnel for short-run needs is expensive, and temporary layoffs hurt morale.

Type of Financial Control. Financial control in a discretionary expense center is quite different from that in an engineered expense center. In the latter, the objective is to become cost competitive by setting a standard and measuring actual costs against this standard. By contrast, the main purpose of a discretionary expense budget is to control costs by allowing the manager to participate in the planning, sharing in the discussion of what tasks should be undertaken, and what level of effort is appropriate for each. Thus, in a discretionary expense center, financial control is primarily exercised at the planning stage before the costs are incurred.

Measurement of Performance. The primary job of a discretionary expense center's manager is to obtain the desired output. Spending an amount that is "on budget" to do this is considered satisfactory; spending more than that is cause for concern; and spending less may indicate that the planned work is not being done. In discretionary centers, as opposed to engineered expense centers, the financial performance report is not a means of evaluating the efficiency of the manager.

It is important to note that the preceding paragraphs are solely related to financial control. Total control over discretionary expense centers is achieved primarily through non-financial performance measures. For example, the best indication of the quality of service for some discretionary expense centers may be the opinion of their users.

Administrative centers include senior corporate management and business unit management, along with the managers of supporting staff units. Support centers are units that provide services to other responsibility centers.

Control Problems The control of administrative expense is especially difficult because of (1) the problems inherent in measuring output, and (2) the frequent lack of congruence between the goals of departmental staff and of the company as a whole.

Difficulty in Measuring Output- Some staff activities, such as payroll accounting, are so routinized that their units are, in fact, engineered expense centers. In other activities, however, the principal output is advice and service-functions that are virtually impossible to quantify, much less evaluate. Since output cannot be measured, it is not possible to set cost standards against which to measure financial performance. Thus, a budget variance cannot be interpreted as representing either efficient or inefficient performance. If the finance staff were to be given an allowance to "develop an activity based management system," for example, a comparison of actual cost to budget cost would not indicate whether or not the assignment had been carried out effectively, regardless of the expense involved.

Lack of Goal Congruence. Typically, managers of administrative staff offices strive for functional excellence. Superficially, this desire would seem to be congruent with company goals; but, in fact, much depends on how one defines excellence. Though a staff office may want to develop the "ideal" system, program, or function, the ideal may be too costly relative to the additional profits that perfection may generate. The "perfect" legal staff, for example, will not approve any contract that contains even the slightest flaw; but the cost of maintaining a staff large enough to guarantee this level of assurance may outweigh the potential loss from minor flaws.

Budget Preparation

The proposed budget for an administrative or support center usually consists of a list of expense items, with the proposed budget being compared with the current year's actual expenses. Some companies request a more elaborate presentation, which may include some or all of the following components:

A section covering the basic costs of the center-including-the costs of "being in business" plus the costs of all intrinsically necessary activities for which no general management decisions are required.

- A section covering the discretionary activities of the center, including a description of the objectives and the estimated costs of each.
- A section fully explaining all proposed increases in the budget other than those related to inflation.

These additional sections are clearly worthwhile only if the budget is large and/or management wishes to determine the proper extent of the center's activities. In other situations, the amount of detail depends on the importance of the expenses and the desires of management.

Research and Development Centers

Control Problems

The control of research and development centers presents its own characteristic difficulties, in particular, difficulty in relating results to inputs; and lack of goal congruence.

Difficulty in Relating Results to Inputs. The results of research and development activities are difficult to measure quantitatively. In contrast to administrative activities, R&D usually has at least a semi tangible output in the form of patents, new products, or new processes; but the relationship of output to input is difficult to appraise on an annual basis because the completed "product" of R&D GROUP may involve several years of effort. Thus, inputs as stated in an annual budget may be unrelated to outputs. Furthermore, even when such a relationship can be established, it may not be possible to reliably estimate the value of the output. And even when such an evaluation can be made, the technical nature of the R&D function may defeat management's attempt to measure efficiency. A brilliant effort may come up against an insuperable obstacle, whereas a mediocre effort may, by luck, result in a bonanza.

Lack of Goal Congruence. The goal congruence problem in R&D centers is similar to that in administrative centers. The research manager typically wants to build the best research organization money can buy, even though that may be more expensive than the company can afford. A further problem is that research

people often do not have sufficient knowledge of (or interest in) the business to determine the optimum direction of the research efforts.

The R&D Continuum

The activities conducted by R&D organizations lie along a continuum, with basic research at one extreme and product testing at the other. Basic research has two characteristics: (1) it is unplanned, with management at best specifying the general area to be explored; and (2) there is often a significant time lapse between the initiation of research and the introduction of a successful new product.

For projects involving product testing, however, it is possible to estimate the time and financial requirements-perhaps not as precisely as for production activities, but with sufficient accuracy to permit a reasonably valid comparison of actual and budget amounts.

As a project moves along the continuum-from basic research, to applied research, to development, to production engineering, to testing-the amount spent per year tends to increase substantially. Thus, if it appears that a project will ultimately turn out to be unprofitable (as is the case for 90 percent of projects, by some estimates), it should be terminated as soon as possible. It is difficult to make such decisions in the early stages, however, since project sponsors usually describe the work-in-progress in the most favorable light. In some cases failure is not discernible until after the product reaches the market.

R&D Program

There is no scientific way of determining the optimum size of an R&D budget. Many companies simply use a percentage of average revenues as a base (preferring an average to a percentage of specific revenues in a given year be cause the size of an R&D operation ought not to be affected by short-term revenue swings). The specific percentage applied is determined in part by a comparison with competitors' R&D expenditures and in part by the company's own spending history. Depending on circumstances, other factors may al ' so come into play: For example, senior management may authorize a large and rapid increase in the budget if it appears that there has been (or is about to be) a significant breakthrough.

Annual Budgets

If a company has decided on a long-range R&D program and has implemented this program with a system of project approval, the preparation of the annual R&D budget is a fairly simple matter, involving mainly the "calendarization" of the expected expenses for the budget period. If the budget is in line with the strategic plan (as it should be), approval is routine-it primarily serves to assist in cash and personnel planning. Preparation of the budget allows management to take another look at the R&D program with this question in mind: "In view of what we now know, is this the best way to use our resources next year?" The annual budget process also ensures that actual costs will not exceed budgeted amounts without management's knowledge. Management should approve significant variances from the budget before they are incurred.

Measurement of Performance

At regular intervals, usually monthly or quarterly, most companies compare actual expenses with budgeted expenses for all responsibility centers and ongoing projects. These comparisons are summarized for managers at progressively higher levels to assist the managers of responsibility centers in planning their expenses and to assure their superiors that those expenses are remaining at approved levels.

In many companies, management receives two types of financial reports on R&D activities. The first type compares the latest forecast of total cost with the approved amount for each active project. It is prepared periodically for the executives who control research spending, to help them determine whether changes should be made in the list of approved projects. The second type of financial report consists of a comparison between budgeted expenses and actual expenses in each responsibility center. Its main purpose is to help research executives anticipate expenses and make sure that expense commitments are being met. Neither type of financial report informs management as to the effectiveness of the research effort. Such information is formally provided by progress reports, which form a partial basis for management's judgments about the effectiveness of a given project. It is important to note, however, that management's primary tool in evaluating effectiveness is face to-face discussion.

In many companies, two very different types of activities are grouped under the heading of marketing, with different controls being appropriate for each. Centers One group of activities relates to the filling of orders. These are

referred to as order filling or logistics activities; and, by definition, take place after an order has been received. The other group of activities relates to efforts to obtain orders, and, obviously, take place before an order has been received. These are the true marketing activities, and are sometimes labeled as such; they may also be called order-getting activities.

Logistics Activities

Logistics activities are those involved in moving goods from the company to its customers and collecting the amounts due from customers in return. These activities include transportation to distribution centers, warehousing, shipping and delivery, billing and the related credit function, and the collection of accounts receivable. The responsibility centers that perform these functions are fundamentally similar to the expense centers in manufacturing plants. Many are engineered expense centers that can be controlled through imposing standard costs and adjusting budgets to reflect these costs at different levels of volume.

In most companies, the "paperwork" involved in filling orders and collecting receivables is now accomplished quickly and at low cost by using the Internet.

Marketing Activities

Marketing activities are those undertaken to obtain orders for company products. These activities include test marketing; the establishment, training, and supervision of the sales force; advertising; and sales promotion-all of which have characteristics that present management control problems.

While it is possible to measure a marketing organization's output, evaluating the effectiveness of the marketing effort is much more difficult. This is because changes in factors beyond the marketing department's control (e.g., economic conditions or the actions of competitors) may invalidate the assumptions on which the sales budgets were based.

In any case, meeting the budgetary commitment for marketing expenses is not a major criterion in the evaluation process, because the impact of sales volume on profits tends to overshadow cost performance. If a marketing group sells twice as much as its quota, it is unlikely that management will be concerned that it exceeded its budgeted cost by 10 percent to bring in those sales. The sales target, not the expense target, is the critical factor.

Responsibility Centers Vs. Cost Centers

A cost center as used in cost accounting is different from a responsibility center in many respects. A cost Center is a location, person or piece of equipment (or group of these) for which cost may be ascertained and used for cost control purposes. Thus, it is used as a means of assembling items of cost that they can be assigned to goods and services. As in case of cost centers the emphasis is more on the job,, product or process whose costs are to be ascertained rather than on persons who may be managing them. On the other hand, responsibility centers are formed on the basis of responsibility delegated to the members of the organization in order to identify cost, which can be controlled, by each one of them for facilitating the operation of management control process. However, cost centers are also used as responsibility centers but they are mainly expense centers whose managers are responsible for costs incurred by the Center (segment).

Measurement of Segment Performance

Nature of Business Activities. A large corporation may contain diverse production and marketing activities that interact with each, other but still may be operated separately. The output (products) of one activity may be the inputs to another, making it important that the volume of these two activities (i.e., production and marketing) be balanced. Sometimes goods may be purchased from outside suppliers, stored at various sites, transported among and within plants, and assigned to the activities that use these goods. Some activities produce finished goods that need to be transported, stored and sold by the other activities. All these diverse activities need to be coordinated. Functions such as personnel, information systems, finance, legal, research and development, utilities, maintenance, and engineering must also be made part of firm's overall planning and control process. Two approaches for managing diverse and complex activities of a large corporation are centralization and decentralization.

Under centralization, organizations, are characterized by vertical, hierarchical relations; control is exercised by orders from above, executed in detail by those be low. Interacting activities are coordinated by plans set at higher levels. Accounting systems and periodic reports provide the central management with all information needed to formulate plans and to detect any departure from centrally-determined policies However, in practice, it is not possible for the central management to obtain all information about the organization's many

activities. Hence, it cannot make all the decisions for lomr level managers. For this and other reasons, clecentralisation is preferred.

Decentralization is the delegation of freedom to make decisions. The lower in the organization that this freedom exists, the greater the decentralization. The benefits of decentralization include: (a) the lower-level man6gers have the best information concerning local conditions and therefore are able to make better decisions than their superiors; (b) managers acquire the ability to make decisions and other managerial skills: and (c) managers enjoy higher status from being independent and thus are better motivated.

However, the costs of decentralization include: (1) Managers may make dysfunctional decisions (a) by focusing on and acting to improve their own subunit's performance at the expense of the organization, or (b) by not being aware of all relevant facts; (2) managers tend to duplicate central services that might be less expensive when centralized (accounting, advertising, and personnel are examples); and (3) costs of accumulating and processing information frequently rise.

Decentralization is more popular in profit-seeking organizations than in non-profit organizations. Cost-benefit considerations usually result in some management decisions being highly decentralized or not-Decentralization tends to be most successful when the segments are relatively independent of one another, i.e., the decisions of one manager do not affect the fortunes of another manager. Sub-unit autonomy is an important criterion if management decides in favor of heavy decentralization.

Organization of decentralized unit. All units in an, organization acquire inputs and produce outputs, either goods or services. Units differ, however, in the case with which the outputs can be measured and in the autonomy that the local manager is given for acquiring inputs and choosing the type or mix of outputs. These considerations make different types of decentralized units appropriate depending upon the difficulty of measuring outputs and the responsibility given to the local manager. Accordingly the principal types are: cost centers, revenue centers, profit centers and investment centers.

PROFIT CENTERS

Profit is the most widely used measure of performance for a business firm. Hence, profit centers are more common in large decentralized

organizations. Evaluating the performance of decentralized units, which the same measure, with which the firm as a whole is evaluated facilitates goal congruence between decentralized units and the firm.

A profit centers a unit, for which the manager has the authority to make decisions on sources of supply and choice of markets. In general, a profit center will be selling a majority of its output to outside customers and is free to choose sources of supply for a majority of its inputs. In this sense, the manufacturing and marketing divisions will not be profit centers, even though some firms may, evaluate these units using a profit figure. Many managers of profit centers are evaluated not just on profit but on the level of profit related to the assets for their units. In that case, it may be referred to as investment center. Return on investment and residual income is typical. Performance measures for investment centers. However, profit center is an appropriate structure of an organizational unit if the fixed investments are stable from, year to year and are not controllable by the manager of profit center.

When a responsibility center's financial performance is measured in terms of profit (that is, by the difference between the revenues and expenses), the center is called a profit center. Profit is a particularly useful performance measure since it allows senior management to use one comprehensive indicator rather than several (some of which may be pointing in different directions).

Conditions for Delegating Profit Responsibility

Many management decisions involve proposals to increase expenses with the expectation of an even greater increase in sales revenue. Such decisions are said to involve expense/revenue trade-offs. Additional advertising expense is an example. Before it is safe to delegate such a trade-off decision to a lowerlevel manager, two conditions should exist.

1. The manager should have access to the relevant information needed for making such a decision.

2. There should be some way to measure the effectiveness of the tradeoffs the manager has made.

A major step in creating profit centers is to determine the lowest point in an organization where these two conditions prevail.

All responsibility centers fit into a continuum ranging from those that clearly should be profit centers to those that clearly should not. Management must decide whether the advantages of giving profit responsibility offset the disadvantages, which are discussed below. As with all management control system design choices, there is no clear line of demarcation.

Prevalence of Proflt Centers

Although E. L du Pont de Nemours & Company and General Motors Corporation divisionalized in the early 1920s,1 most companies in the United States remained functionally organized until after the end of World War 11. Since that time many major U.S. corporations have divisionalized. and have decentralized profit responsibility at the business unit level. Alfred P. Sloan (General Motors) and Ralph J. Cordiner (General Electric) have documented the philosophy of divisionalization and profit decentralization.

Measures of Performance

Despite the weakness of the financial accounting system; the accounting profit is considered an effective measure of performance. The financial accounting process provides a formal discipline for the generation and collection, of data. The discipline comes from the necessity for systematically accounting for all cash transactions: Since almost any activity of the firm will ultimately result in a cash transaction, the amounting system is comprehensive and pervasive. It is also mandatory, in order to meet financial reporting and tax requirements. For these reasons business firms rely much on financial measures of performance, of which profit is the most common and comprehensive. However, two problems are encountered in measuring profit, they are- (a) choosing a profit index, and (b) pricing the transfer of goods between profit centers.

Variable Contribution Margin

The division variable contribution is important for understanding the cost-volume-profit relationship within the division, but it is not as useful for performance evaluation. As the division manager has control over, at least, some of the fixed costs, he can have the option of trading off between fixed and variable costs. Hence, the performance evaluation should include as a minimum controllable-fixed costs.

Controllable Contribution

The controllable contribution is the total division revenues less all the costs that are directly traceable to the division and controllable by the division manager. It includes fixed costs that may arise from the use of indirect labor, indirect materials, and utilities. The division manager has the option of reducing these fixed costs. Since they are fixed only with respect to changes in activity levels. Controllable contribution is perhaps the best performance measure of division manager, since it reflects his ability to use effectively the resources under his control and authority. However, the main limitation of this measure is that it may be difficult to distinguish between controllable and non-controllable fixed costs. **Divisional Contribution**

The divisional contribution represents the contribution the division is making to corporate profit and overhead. It evaluates more the performance of the division than that of the division manager. Some of the division overheads (e.g., cost of fixed assets) may result from past, investment decisions by top management. Also, central management may set the salaries of division executives. The divisional contribution is clearly an important indicator for evaluating the division's profitability, but unless the division manager is given-authority to restructure the investment or, key personnel of the division, these costs are not controllable and hence they may not be relevant in evaluating the manager's performance.

Divisional Profits Before Taxes

Many companies allocate all central, general and administrative expenses to their division. The division, managers are motivated to generate enough contribution margin to cover a fair share of these expenses. A company, as a whole will be profitable when profits generated by divisions exceed centrally incurred costs. However, it' doesn't seem proper to include these costs while evaluating the performance of a division or a divisional manager for the following reasons

(1) These costs are not controllable at the divisional level. Hence, an adverse profit variance due to unexpected large allocation of corporate, expenses cannot be attributed to divisional manager who have no control over such expenses.

(2), The basis of allocation of corporate expenses to divisions is usually arbitrary having into the way in which divisional activities influences the level of

corporate expenses. Hence, the argument is that the division managers can concentrate only on increasing revenues and reducing costs that are under their control and need not be concerned with analyzing costs that are non-controllable and that are allocated arbitrarily. However, there are two counter arguments to this. The first is that the divisions should be charged for increments in central corporate expenses caused by divisional activities, the second argument is that the allocation of central overhead expenses to division will make the division managers more aware of these costs, so that they will exert pressure to keep down the cost of central staff departments. If the Central Management were willing to allow division managers participate in decisions on the level of corporate staff activities, it would be reasonable to allocate these expenses back to the divisions.

Common Revenues

Occasionally a conflict may arise on the allocation of revenue between profit centers. This can occur when a salesman of one division promotes the sale of products of other divisions during his call on customers. Unless some credit is given for selling the products of other divisions there will not be any motivation for attempting to - make such sales. A similar problem arises when branch banks are evaluated as profit centers. A customer may open an account in a branch near his residence but majority of banking transactions may be conducted in branch near his place of work. Conflicts between these two branches may arise in the allocation of all revenues earned from his account and the costs of supplying the banking services to him. In such instances it would be reasonable to construct a fee schedule to debit or credit revenue earning and cost incurring divisions/branches for rendering services to customers. Of course, such arrangements are complicated. However they illustrate the problems that arise from decentralized profit directed operations.

Advantages of Profit Centers

Establishing organization units as profit centers provides the following advantages:

-- The quality of decisions may improve because they are being made by managers closest to the point of decision.

-- The speed of qperating decisions may be increased since they do not have to be referred to corporate, headquarters.

---Headquarters management, relieved of day-to-day decision-making, can concentrate on broader issues.

---Managers, subject to fewer corporate restraints, are freer to use their imagination and initiative.

---Because profit centers are similar to independent companies, they provide an excellent training ground for general management. Their managers gain experience in managing all fimctional areas, and upper management gains the opportunity to evaluate their potential for higher-level jobs.

---Profit consciousness is enhanced since managers who are responsible for profits will constantly seek ways to increase them. (A manager responsible for marketing activities, for example, will tend to authorize promotion expenditures that increase sales, whereas a manager responsible for profits will be motivated to make promotion expenditures that increase profits.)

---Profit centers provide top management with ready-made information on the profitability of the company's individual components.

---Because their output is so readily measured, profit centers are particularly responsive to pressures to improve their competitive performance.

Difficulties with Profit Centers

However, the creation of profit centers may cause difficulties:

• Decentralized decision-making will force top management to rely more on management control reports than on personal knowledge of an operation, entailing some loss of control.

• If headquarters management is more capable or better informed than the average profit center manager, the quality of decisions made at the unit level may be reduced.

• Friction may increase because of arguments over the appropriate transfer price, the assignment of common costs, and the credit for revenues that were formerly generated jointly by two or more business units working together.

• Organization units that once cooperated as functional units may now be in competition with one another. An increase in profits for one manager may mean a decrease for another. In such situations, a manager may fail to refer sales leads to another business unit better qualified to pursue them; may hoard personnel or

equipment that, from the overall company standpoint, would be better off used in another unit; or may make production decisions that have undesirable cost consequences for other units.

• Divisionalization. may impose additional costs because of the additional management, staff personnel, and record keeping required, and may lead to task redundancies at each profit center.

• Competent general managers may not exist in a functional organization because there may not have been sufficient opportunities for them to develop general management competence.

• There may be too much emphasis on short-run profitability at the expense of long-run profitability. In the desire to report high current profits, the profit center manager may skimp on R&D, training programs, or maintenance. This tendency is especially prevalent when the turnover of profit center managers is relatively high. In these circumstances, managers may have good reason to believe that their actions may not affect profitability until after they have moved to other jobs.

• There is no completely satisfactory system for ensuring that optimizing the profits of each individual profit center will optimize the profits of the company as a whole.

Business Unit As Profit Centers

Most business units are created as profit centers since managers in charge of Units such units typically control product development, manufacturing, and maras Profit keting resources. These managers are in a position to influence revenues and Centers costs and as such can be held accountable for the "bottom line." However, as pointed out in the next section, a business unit manager's authority may be constrained in various ways, which ought to be reflected in a profit center's design and operation.

Constraints on Business Unit Authority

To realize fully the benefits of the profit center concept, the business unit manager would have to be as autonomous as the president of an independent company. As a practical matter, however, such autonomy is not feasible. If a company were divided into completely independent units, the organization would lose the advantages of size and synergy. Furthermore, in delegating to

business unit management all the authority that the board of directors has given to the CEO, senior management would be abdicating its own responsibility. Consequently business unit structures represent trade-offs between business unit autonomy and corporate constraints. The effectiveness of a business unit organization is largely dependent on how well these trade-offs are made.

Constraints from Other Business Units. One of the main problems occurs when business units must deal with one another. It is useful to think of managing a profit center in terms of control over three types of decisions:

(1) the product decision(what goods or services to make and sell); (2) the marketing decision (how, where, and for how much are these goods or services to be sold); and (3)the procurement or sourcingdecision (how to obtain or manufacture the goods or services). If a business unit manager controls all three activities, there is usually no difficulty in assigning profit responsibility and measuring performance. In general, the greater the degree of integration within a company, the more difficult it becomes to assign responsibility to a single profit center for all three activities in a given product line; that is, if the production, procurement, and marketing decisions for a single product line are split among two or more business units, separating the contribution of each business unit to the overall success of the product line may be difficult.

Constraints from Corporate Management. The constraints imposed by corporate management can be grouped into three types: (1) those resulting from strateig considerations; (2) those resulting because uniformity. is required; and (3) those resulting from the economies of centralization.

Most companies retain certain decisions, especially financial decisions, at the corporate level, at least for domestic activities. Consequently, one of the major constraints on business units results from corporate control over new investments. Business units must compete with one another for a share of the available funds. Thus, a business unit could find its expansion plans thwarted because another unit has convinced senior management that it has a more attractive program. Corporate management also imposes other constraints. Each business unit has a "charter" that specifies the marketing and/or production activities that it is permitted to undertake, and it must refrain from operating beyond its charter, even though it sees profit opportunities in doing so. Also, the maintenance of the proper corporate image may require constraints on the quality of products or on public relations activities.

Companies impose some constraints on business units because of the necessity for uniformity. One constraint is that business units must conform to corporate accounting and management control systems. This constraint is especially troublesome for units that have been acquired from another company and that have been accustomed to using different systems.

Other Profit Centers

Examples of profit centers, other than business units, are described below.

Functional Units

Multibusiness companies are typically divided into business units, each of which is treated as an independent profit-generating unit. The subunits within these business units, however, may be functionally organized. It is sometimes desirable to constitute one or more of the functional units-e.g., marketing, manufacturing, and service operations-as profit centers. There is no guiding principle declaring that certain types of units are inherently profit centers and others are not. Management s decision as to whether a given unit should be a profit center is based on the amount of influence (even if not total control) the unit's manager exercises over the activities that affect the bottom line.

Marketing. A marketing activity can be turned into a profit center by charging it with the cost of the products sold. This transfer price provides the marketing manager with the relevant information to make the optimum revenue/cost trade-offs; and the standard practice of measuring a profit center's manager by the center's profitability provides a check on how well these trade-offs have been made. The transfer price charged to the profit center should be based on the standard cost, rather than the actual cost, of the products being sold. Using a standard cost base separates the marketing cost performance from that of the manufacturing cost performance, which is affected by changes in the levels of efficiency that are beyond the control of the marketing manager.

When should a marketing activity be given profit responsibility? When the marketing manager is in the best position to make the principal cost/revenue trade-offs. This often occurs where different conditions exist in different geographical areas-for example, a foreign marketing activity. In such an activity, it may be difficult to control centrally such decisions as how to market a product; how to set the price; how much to spend on sales promotion, when to spend it,

and on which media; how to train salespeople or dealers; where and when to establish new dealers.

Manufacturing. The manufacturing activity is usually an expense center, with the management being judged on performance versus standard costs and overhead budgets. This measure can cause problems, however, since it does not necessarily indicate how well the manager is performing all aspects of his job. For example:

- A manager may skimp on quality control, shipping products of inferior quality in order to obtain standard cost credit.

- A manager may be reluctant to interrupt production schedules in order to produce a rush order to accommodate a customer.

- A manager who is measured against standards may lack the incentive to manufacture products that are difficult to produce or to improve the standards themselves.

Therefore, where if performance of the manufacturing process is measured against standard costs, it is advisable to make a separate evaluation of such activities as quality control, production scheduling, and make-or-buy decisions.

One way to measure the activity of a manufacturing organization in its entirety is to turn it into a profit center and give it credit for the selling price of the products minus estimated marketing expenses. Such an arrangement is far from perfect, partly because many of the factors that influence the volume and mix of sales are beyond the manufacturing manager's control. However, it seems to work better in some cases than the alternative of holding the manufacturing operation responsible only for costs.

Some authors maintain that manufacturing units should not be made into profit centers unless they sell a large portion of their output to outside customers; they regard units that sell primarily to other business units as pseudo profit centers on the grounds that the revenues assigned to them for sales to other units within the company are airtificial. Some companies, nev ertheless, do create profit centers for such units. They believe that, if properly designed, the system can create almost the same incentives as those provided by sales to outside customers.

Service and Support Units. Units for maintenance, information technology, transportation, engineering, consulting, customer service, and similar support activities can all be made into profit centers. These may operate out of headquarters and service corporate divisions, or they may fulfill similar fimctions within business units. They charge customers for services rendered, with the financial objective of generating enough business so that their revenues equal their expenses. The prevalence of such practices is (The firms that charge "based on usage" probably treat these units as profit centers.) Usually, the units receiving these services have the option of procuring them from an outside vendor instead, provided the vendor can offer services of equal quality at a lower price.

Swissair converted its Engineering and Maintenance Division (EMD) from a cost center into a profit center to gain greater control over EMD's cost structure and also to make EMD both more responsive to the needs of its internal customers and more competitive for its external customers. In short, Swissair wanted EMD to be an independent, entrepreneurial operation making profits for the company.

When service units are organized as profit centers, their managers are motivated to control costs in order to prevent customers from going elsewhere, while managers of the receiving units are motivated to make decisions about whether using the service is worth the price.

Other Organizations

A company with branch operations that are responsible for marketing the company's products in a particular geographical area is often a natural for a profit center. Even though the branch managers have no manufacturing or procurement responsibilities, profitability is often the best single measure of their performance. Furthermore, the profit measurement is an excellent motivating device. Thus, the individual stores of most retail chains, the individual restaurants in fast-food chains, and the individual hotels in hotel chains are profit centers.

Measuring Profitability

There are two types of profitability measurements used in evaluating a profit Profitability center, just as there are in evaluating an organization as a whole. First, there is the measure of management performance, which focuses on how

well the manager is doing. This measure is used for planning, coordinating, and controlling the profit center's day-to-day activities and as a device for providing the proper motivation for its manager. Second, there is the measure of economic performance, which focuses on how well the profit center is doing as an economic entity. The messages conveyed by these two measures may be quite different from each other. For example, the management performance report for a branch store may show that the store's manager is doing an excellent job under the circumstances; while the economic performance report may indicate that because of economic and competitive conditions in its area the store is a losing proposition and should be closed.

The necessary information for both purposes usually cannot be obtained Income tax a from a single set of data. Since the management report is used frequently,while the economic report is prepared only on those occasions when economic decisions must be made, considerations relating to management performance Measurernent have first priority in systems design-that is, the system European Aomshould be designed to measure management performance routinely, with economic information being derived from these performance reports as well asfrom other sources.

Types of Profitability Measures

A profit center's economic performance is always measured by net income(that is, the income remaining after all costs, including a fair share of the chorporate overhead, have been allocated to the profit center). The performance of the profit center manager, however, may be evaluated by five different measures of profitability: (1) contribution margin, (2) direct profit, (3) controllableprofit, (4) income before income taxes, or (5) net income.

(1) Contribution Margin. Contribution margin reflects the spread between revenue and variable expenses. The principal argument in favor of using it to measure the performance of profit center managers is that since fixed expenses are beyond their control, managers should focus their attention on maximizing contribution. The problem with this argument is that its premises are inaccurate; in fact, almost all fixed expenses are at least partially controllable by the manager, and some are entirely controllable. As discussed in Chapter 3, many expense items are discretionary; that is, they can be changed at the discretion of the profit center manager. Presumably, senior management wants the profit center to keep these discretionary expenses in line with amounts agreed on in the

budget formulation process. A focus on the contribution margin tends to direct attention away from this responsibility. Further, even if an expense, such as administrative salaries, cannot be changed in the short run, the profit center manager is still responsible for controlling employees' efficiency and productivity.

(2) Direct Profit. This measure reflects a profit center's contribution to the general overhead and profit of the corporation. It incorporates an expenses either incurred by or directly traceable to the profit center, regardless of whether or not these items -are within the profit center manager's control. Expenses incurred at headquarters, however, are not included in this calculation.

A weakness of the direct profit measure is that it does not recognize the motivational benefit of charging headquarters costs.

(3) Controllable Profit. Headquarters expenses can be divided into two categories: controllable and noncontrollable. The former category includes expenses that are controllable, at least to a degree, by the business unit manager-information technology services, for example. If these costs are included in the measurement system, profit will be what remains after the deduction of all expenses that may be influenced by the profit center manager. A major disadvantage of this measure is that because it excludes noncontrollable headquarters expenses it cannot be directly compared with either published data or trade association data reporting the profits of other companies in the industry.

(4) Income before Taxes. In this measure, all corporate overhead is allocated to profit centers based on the relative amount of expense each profit center incurs. There are two arguments against such allocations. First, since the costs incurred by corporate staff departments such as finance, accounting, and human resource management are not controllable by profit center managers, these managers should not be held accountable for them. Second, it may be difficult to allocate corporate staff services in a manner that would properly reflect the amount of costs incurred by each profit center.

There are, however, three arguments in favor of incorporating a portion of corporate overhead into the profit centers' performance reports. First, corporate service units have a tendency to increase their power base and to enhance their own excellence Without regard to its effect on the company as a whole. Allocating corporate overhead costs to profit centers increases the likelihood that profit center managers will question these costs, thus serving to keep head office

spending in check. (Some companies have actually been known- to sell their corporate jets because of complaints from profit center managers about the cost of these expensive items.) Second, the performance of each profit center will become more realistic and more readily comparable to the performance of competitors -who pay for similar services. Finally, when managers know that their respective centers will not show a profit unless all costs, including the allocated share of corporate overhead, are recovered, they are motivated to make optimum long-term marketing decisions as to pricing, product mix, etc., that will ultimately benefit (and even ensure the viability of) the company as a whole.

If profit centers are to be charged for a portion of corporate overhead, this item should be calculated on the basis of budgeted, rather than actual, costs, in which case the "budget" and "actual" columns in the profit center's performance report will show identical amounts for this particular item. This ensures that profit center managers will not complain about either the arbitrariness of the allocation or their lack of control over these costs, since their performance reports will show no variance in the overhead allocation. Instead, such variances would appear in the reports of the responsibility center that actually incurred these costs.

(5) Net Income. Here, companies measure the performance of domestic profit centers according to the bottom line, the amount of net income after income tax. There are two principal arguments against using this measure: (1) after tax income is often a constant percentage of the pretax income, in which case there would be no advantage in incorporating income taxes; and (2) since many of the decisions that affect income taxes are made at headquarters, it is not appropriate to judge profit center managers on the consequences of these decisions.

There are situations, however, in which the effective income tax rate does vary among profit centers. For example, foreign subsidiaries or business units with foreign operations may have different effective income tax rates. In other cases, profit centers may influence income taxes through their installment credit policies, their decisions on acquiring or disposing of equipment, and their use of other generally accepted accounting procedures to distinguish gross from taxable income. In these situations, it may be desirable to allocate income tax expenses to profit centers, not only to measure their economic profitability but also to motivate managers to minimize tax liability.

Revenues. Choosing the appropriate revenue recognition method is important. Should revenues be recorded when an order is made, when an order is shipped, or when cash is received?

In addition to that decision, there are other issues relating to common revenues that may require consideration. In some situations two or more profit centers may participate in a successful sales effort; ideally, each center should be given appropriate credit for its part in the transaction. Many companies do not devote a great deal of attention to solving these common revenue problems. They take the position that the identification of precise responsibility for revenue generation is too complicated to be practical, and that sales personnel must recognize they are working not only for their own profit center but also for the overall good of the company. Other companies attempt to untangle the responsibility for common sales by crediting the business unit that takes an order for a product handled by another unit with the equivalent of a brokerage commission or a finder's fee (or, as in the case of a bank, by granting explicit credit to the branch that performs a service even though the account of the customer being served is maintainedat another branch).

Management Considerations. Most companies in theUnited States include some, if not all, of the costs discussed earlier in evaluating the business manager, whether or not they are in control .

Most of the confusion in measuring the performance of profit center managers results from failing to separate the measurement of the manager from the economic measurement of the profit center. If one considers the measurement of the manager alone, the solution often becomes evident: Managers should be measured against those items they can influence, even if they do not have total control over those items. In the typical company, these items probably include all expenses incurred directly in the profit center. Managers should be measured on an aftertax basis only if they can influence the amount of tax their unit pays; and items that they clearly cannot influence,such as currency fluctuation, should be eliminated.

Following these guidelines, however, does not solve all the problems. Degrees of influence vary; and there are always items over which a manager may exercise some influence but little real control. Thus variance analysis is always important in evaluating management performance. But even the best variance analysis system will still require the exercise of judgment; and one way

to make this judgment more reliable is to eliminate all items over which the manager has no influence (or report them in such a way that variances do not develop).

Prerequisites for the Successful Implementation of the Profit Center System

(i) Sound System of Transfer-Prices: When one division takes the goods or services of another division, the goods or services of the latter division, the goods or services of the latter division must be transferred to the former at a price. Transfer prices should be fair to both divisions. That is, a price must be determined to use as a basis of assigning a cost to the division acquiring the goods or services. Likewise, a price must be used as the basis for reporting the revenue of the division selling the goods or service.

(ii) Independence to the Divisional Manager. If the manager of a Profit center has little authority to decide on the quality and quantity of its output or on the relation of output to costs then a profit center is usually of little use as a control device. This does not imply that the manger of a profit center must have complete control over output and inputs, for few, if any managers have such complete authority. Some authorities insist that the divisional manager should have the liberty to buy it from another division of the company or from the open market.

(iii) Existence of Market: There must exist a market for the goods/services rendered by one division to another. If identifiable products are not available, at least, substitutes must be available. The market must be fairly stable and reliable.

(iv) Negotiation by Divisional Managers: Divisional Managers must be allowed to freely negotiate and bargain among themselves. Usually, the purchasing division is interested in maximizing the transfer prices.

(v) Uniform System of Accounting: There should be fool proof and uniform system of accounting to measure the profits. Realistic standards of profits and profitability should be evolved to compare against actual.

(vi) Arbitration to Settle Disputes: There must be some institutional arrangement to settle disputes relating to transfer prices. An official arbitrator may be appointed.

(vii) Free Service must be furnished, if required: When top management requires the responsibility center to use a certain service furnished by another

responsibility center within the company, the service probably should be furnished at no charge, and the service unit, therefore, should not be a profit center. For example, if the top management requires the internal audits be made, the responsibility centers probably should not be asked to pay for the cost of the internal auditing, and the internal auditing unit should therefore not a profit center.

(viii) Adequate Understanding of the Management Job: To, the extent that a profit center puts a manager business for the himself, it promotes a spirit of competition in many situations competition provides a powerful incentive for good management. In other situations, however, organization units should cooperate closely with one another. In these situations the profit center device may generate excessive friction between profit centers to the detriment of the whole company's welfare. Also it may generate too much interest in short run profits detrimental to the long-run results. These difficulties are likely to arise when managers have an inadequate understanding of the management job, and the problems often can be overcome by education. If however they cannot be overcome, the profit center technique should not be used.

(ix) Organizational Requirements: The Organization requirements are: (a) A well-knit organization chart delineating clearly the levels of authority and responsibility, (b) A sound and prompt system of information and reporting i.e., an effective Management Information System to take care of both collection of data ad presentation of analysis. (c) Preferably a low rate employee turnover and not too frequent transfers of staff, at least at responsibility levels.

(x) Implementation in Phases: Though the profit-center concept has got a very wide purview, still its implementation should be taken up in phases, initially with one functional area, preferably marketing. The Budgeting and Budget revision mechanism should be geared towards the profit-center wise requirements this would obviate the need for subsequent arbitrary break-up of all relevant Budget figures.

The important advantages attached to the concept are: (i) profitability is the simplest way of analyzing the effectiveness of a segment of a complex business and (ii) Managers understand pretty well what profit is and aggressive managers always welcome the opportunity of having their performance measured by real entrepreneurial yardstick.

Mechanics of setting up Profit Center Controls

A Profit Center is defined as any service, any product, or any family of products and services, which generates profits. The steps involved in setting up your profit center controls are:

1. Assign one person as each profit center manager. This individual has both the responsibility and the authority to maximize the profits of his center. This manager should be a "bulck stops here" type of guy.

2. Segment your company into its cash producing components (profit centers) and treat each center as a separate division or company. Each center must have its own set of books to which its manager must answer.

3. Utilize simple accounting for each center by divorcing all ledgers over which the profit center manager has no controls. In this step you are breaking out all overhead, G & A, facilities, support staffs, service staff, taxes, and that capital equipment shared by more than one single profit center. This action forces all overhead people to be evaluated alone.

4. Divide each profit center's materials and production stages into their smallest increments. Give each increment full ledger status. In other words, if your profit center has four production stations, one QA station, and is made up of six parts. then this profit center has 11 ledgers for these 11 items.

5. Introduce a ledger linkage system, which will allow your accountants to combine ledgers of identical items used by the various profit centers. This linkage will allow your purchasing department to combine identical items for quantity discounts, it will allow your administration to optimize manpower loading, it will allow your production people to more efficiently schedule work stations and inventory, and it will allow your sales people to priority key Customers deliveries.

6. Establish a security system, which will allow information to disseminate to all levels on a need-to-know basis. The usual security system is to classify each ledger on a total basis.

7. Develop a reliable system in which all "input" information flows from the groups to accounting and all "output" information flows from accounting back to the groups. There are probably a dozen different ways that you can accomplish

this, however you'll be wise to make it accounting's responsibility to make whatever way you select work.

8. Decide what kind of information you want from accounting. Feel free to dictate the formats and leave ample space for reader notes. You'll observe that your accounting reports will gather all kinds of scribbled notes and be sent back and forth in place of typed memos.

9. Determine the frequencies for each report. Some marketing, inventory, production, purchasing, and administration reports may be generated on almost a daily basis, whereas some financial reports may be needed only on a monthly or quarterly basis.

10. Establish your management-by-exceptions flags and make certain that they are reliably tripped; your exceptions reports will then become the backbone of your operation's management.

11. Implement your reward/punishment incentives into this accounting system so that it will reliably disburse both rewards and punishments.

12. Since all past information is developed from actual expenses and payments, your ledgers already handle this aspect. However, since your proforma (projected) management information comes from both back orders and sales forecasts and the floating budgets to satisfy these predicted sales, both your marketing and accounting groups must work well together. Your short-range sales forecasts should be within + 10% your mid-range forecasts should be within + 20% and your long-range forecasts should be within + 30%. Implement the forecasting systems, which will give you these reliabilities.

13. Establish a floating budget for each group. The budget varies both upwards and downwards with sales. Establish your lead/lag time periods with this floating concept.

14. Determine what percentage of profits of each profit center will flow into the company treasury. Deduct this percentage plus the cost of sales percentages from the selling price and that is the value at which each profit center must sell the product or service to your company. This value minus the costs of producing the product is the profit the center realizes, this can be divided amongst the company and the center's team.

15. Establish a series of mini-reserves and allow the proper level manager authority to release funds from these reserves if, front money is necessary to test a production cost savings idea, then the profit center managers and the production manager can withdraw funds from their respective reserves to determine the viability of the idea.

16. Agree to perform both periodic and random audits of this system. Though profit center controls have dozens of built-in checks and balances that make the systems hard to beat, it should be policed by audits. Your accounting group can perform the periodic audits; however consider bringing in an outside Chartered Accountant for the random audits so that everyone is kept honest.

17. You have now developed a flexible system that restricts no one from performing company business. Therefore, there is no reason for anyone to try to disguise, pad, end run, shoot, or buck pass the system make it a well published company policy of how you'll deal with those who do attempt to violate your system.

Transfer Pricing and Management Control

Conflicts may arise when decentralized organizational units interact with each other. Potential for such conflicts will be more when goods produced in one unit are transferred to another. If both units are organised as profit centers, a price in must be placed on such transfers; this price represents revenue to the producing division and a cost to the purchasing division. Therefore, the transfer price affects the profitability, of both divisions, so that the managers of both divisions keep interest in how this price is determined.

Meaning of Transfer Prices

Transfer prices are the amounts charged by one sub-unit of an organization for a product or service that it supplies to another sub-unit of the same organization. Most often, the term is associated with materials, parts, or finished, goods. The transfer price serves two roles. First, as a price; it is a guide to local decision-making; it helps the producing division decide how much of the product it wants to sell, and, for the purchasing division, how much to acquire. Second, the prices and subsequent profit measurement help to the management to evaluate the profit centers as separate entities. But a set of transfer prices providing motivations that produce maximum profits to the firm may cause a division to operate at a loss. This may lead the divisions to make sub-optimal

decisions. Additional problem may arise if managers emphasize short-term performance in their transfer pricing negotiations at the expense of long-run profitability of their division and the firm.

Broader Objectives Of Transfer Pricing

If two or more profit centers are jointly responsible for product development, manufacturing, and marketing, each should share in the revenue generated when the product is finally sold. The transfer price is the mechanism for distributing this revenue. The transfer price should be designed so that it accomplishes the following objectives:

- It should provide each business unit with the relevant information it needs to determine the optimum trade-off between company costs and revenues.
- It should induce goal congruent decisions-that is, the system should be designed so that decisions that improve business unit profits .will also improve company profits.
- It should help measure the economic performance of the individual business units.
- The system should be simple to understand and easy to administer

Specific Objectives of Transfer Prices:

A sound transfer price system should accomplish the following objectives:

1.Divisional Autonomy: It should motivate the division manager to make sound decisions, and it should communicate information that provides a reliable basis for such decisions. This will happen when actions that the division manager takes to improve the reported profit of his division also improves the profit of the company as a whole.

2. Divisional Performance Appraisal: It should result in a report of divisional profits that is a reasonable measure of the economic performance of the division.

3. Goal Congruence: The prices should be set so that the divisional management's desire to maximize divisional earnings is consistent with the objectives of the company as a whole. The transfer prices should not encourage sub-optimal decision-making.

These objectives cannot be achieved perfectly. In striving to increase the profits of his division, the division manager may make decisions that hurt the

profits of other divisions and thus hurt the company as a whole; the transfer price system can minimize, but it probably cannot eliminate, this tendency. Up to a point, the system should motivate division managers to act as if they were the heads of independent companies; but division managers must, beyond this point, act for the good of the corporation as a whole, even at the expense of the reported profitability of their own divisions.

Issues in Transfer Pricing

Establishing a theoretical frame-work for equitable transfer prices is not an impossible task. However, at the operational level, the subject matter has varied ramifications and for want of clear guidance and timely decisions on behalf of the Management, transfer prices become a source of seemingly interminable conflicts among divisional managers at the cost of corporate interests.

Transfer prices measure exchange of products and services between cover pricing of (i) service responsibility centers within a company. They could render by service departments to user departments, (ii) transactions between divisions entrusted with profit responsibility, (iii) transactions between legally independent organizations but under the same management, and (iv) under bilateral monopolistic conditions.

When profits are used as a measure of divisional performance, the concept of transfer pricing is conducive to the promotion of goal congruence. If the corporate management can establish profit center concept by assignment of responsibility for cost and revenue, and a transfer price can be established which, given a volume of sales, would cause a divisional manager to make the same decision that would be made by the top management, it can delegate unlimited authority to divisional managers whether they purchase or sell, within or outside the organization.

Usefulness of Transfer Pricing.

The concept of transfer pricing could be used to (i) identify unit contribution to the total profit, (ii) encourage profit consciousness, (iii) measure management performance, (iv) maximize operating unit profitability, (v) locate profits to minimize tax, (vi) facilitate decentralized decision making, (vii) motivate divisional managers, towards goal congruence, and (viii) serve as a tool for control.

It has disadvantages too, namely. (i) Unit managers tend to prefer divisional profits over corporate (ii) lengthy disagreements on prices, (iii) extra administrative costs, (iv) need for conventions, if no market prices are available, (v) arguments over disposition of variances, (vi) prices to minimize tax labialise, and (vii) task of eliminating book profits arising from interdivisional profits.

Organizational framework: There is no one method of arriving at transfer prices, which could be considered as ideal in all circumstances. As a matter of fact a form of transfer pricing suitable less than one situation may cause difficulties under another. A study of the nature of industry, organization structure, its culture, degree of centralization etc., would be helpful before an attempt is made to arrive at a suitable basis for determining transfer prices. When evolving procedure for determining transfer prices, factors which could be considered are (i) the role of the corporate office and if the prices will be centrally administered, (ii) the extent of internal negotiations, (iii) accountants' role and (iv) whether the prices will be related to costs or derived from selling prices.

The company's organizational structure would be quite-relevant. When considering the same, the following will have to be considered: (a) nature of industry and size of operations, (b) extent of vertical and lateral integration, (c) extent of decentralization, and (d) objectives before the management.

Other significant aspects that need to be considered are:

(1) Sourcing decisions: Both the divisions, viz., buying and selling, can take sourcing decisions independently on their own; they cannot-take such decisions, and only some of the divisions can take such decisions.

2. Manufacturing processes: (a) Mass, batch or unit, (b) for stock or against specific orders, and (c) whether raw material, intermediate or and products.

3. Market situation: (a) Buyer's vs. seller's market, (b) if market price is readily available, and (c) extent and nature of competition.

4. Control exercised by the center would cover areas such as: (a) sourcing, (b) pricing, (c) profitability, (d) return on investment, (e) cost performance, (f) approval of unit budget, (g) cash flow, (h) approval of capital expenditure, (i) turnover and, (j) market share.

Types of Transfer Prices

1. Market Based Transfer Price: In a competitive situation, transfer prices are more likely to be related to selling prices. But complications set in because a perfectly competitive situation is largely a theoretical assumption of economists, which is rarely found in existence in reality. The problem areas arising from the use of market prices for determining transfer prices are: fluctuating prices, different markets, product differentiation, varying level of quality and service and extra features.

The advantages of using selling prices for determining transfer prices are: i) divisional managers are assured of independence in respect of sourcing decisions, ii) market prices represent true opportunity costs, and iii) they provide incentive for efficient production because excessive cost cannot be passed onto the buyers.

1. The disadvantages are: (i) it can be applied only to fairly standard products under stable market conditions, (ii) it breaks down when there is excess capacity, (iii) low initial prices are often quoted to get a foothold in the market and (iv) there are problems of quality differentials between outsider's products and the company's own standards.

2. Cost Based Transfer Price: The concept of cost is subject to varied interpretations. In the process, the basic assumptions and sometimes, even the arithmetic of it get challenged. Various alternatives are, namely, variable cost; direct cost; full cost; full cost plus profit; two part consisting of standard variable cost to manufacture plus lump sum share of fixed manufacturing cost; three part which consists of two parts as above plus a charge to cover return on capital employed.

Problem areas when using costs as a basis for transfer pricing could be broadly covered under materials and labor and overheads:

Materials: (a) Purchase costs could vary from consignment to consignment. (b) One could dispute the percentage to be added on account of manufacturing losses. (c) One has to decide if abnormal losses have to be provided. (d) Control prices vs. market prices. (e) FIFO, LIFO, average or derived from specific consignment.

Labor and Overheads: The following are areas, which could lead to disputes: (a) Level of activity to be adopted. (b) Efficiency variables. (c) Abnormal items.

(d) Basis of overhead allocations. (e). Expenditure incurred to derive long-term benefits. (f) Varying capacity utilization each year and impact thereof on overhead allocation. (g) Share of R & D and corporate office expenses.

3. Negotiated Transfer Prices: In theory, a transfer price based on negotiations between buying and selling divisions would be more acceptable. This presupposes that the divisional managers and those who are involved in determining transfer prices have adequate information and market situation and product costs. This will enable them to arrive at transfer prices, which are fair to both the parties. In practice, negotiations do not always result in harmonious relations as they should because of varying positions of strengths, unresolved conflicts and cases going by default for either lack of information or bad presentation of one's case.

Transfer Pricing Methods

Some writers use the term "transfer price" to refer to the amount used in accounting for any transfer of goods and services between responsibility centers. We use a somewhat narrower definition and limit the term "transfer price" to the value placed on a transfer of goods or services in transactions in which at least one of the two parties involved is a profit center. Such a price typically includes a profit element because an independent company normally would not transfer goods or services to another independent company at costor less. Therefore, we exclude the mechanics for allocating costs in a cost accounting system; such costs do not include a profit element. The term "price" as used here has the same meaning as it has when used in connection with transactions between independent companies.

Fundamental Principle

The transfer pricing issue is actually about pricing in general, modified slightly to take into account factors that are unique to internal transactions. The fundamental principle is that the transfer price should be similar to the price that would be charged if the product were sold to outside customers or purchased from outside vendors. Applying this principle is complicated by the fact that there is much disagreement in the literature as to how outside sell ing prices are established. Classical economics literature states that selling prices should be equal to marginal costs, and some authors advocate a transfer price based on marginal Cost. This is unrealistic. Few companies follow such a policy in arriving at either selling prices or transfer prices.

When profit centers of a company buy products from, and sell to, one another two decisions must be made periodically for each product:

1. Should the company produce the product inside the company or

purchase it from an outside vendor? This is the sourcing decision.

2. If produced inside, at what price should the product be transferred between profit centers? This is the transfer price decision.

Transfer price systems can range from very simple to extremely complex, depending on the nature of the business. We start with the ideal situation and then describe increasingly complex situations.

The Ideal Situation

A market price-based transfer price will induce goal congruence if all the conditions listed below exist. Rarely, if ever, will all these conditions exist in practice. The list, therefore, does not set forth criteria that must be met to have a transfer price. Rather, it suggests a way of looking at a situation to see what changes should be made to improve the operation of the transfer price mechanism.

Competent People. Ideally, managers should be interested in the long-run as well as the short-run performances of their responsibility centers. Staff people involved in negotiation and arbitration of transfer prices also must be competent.

Good Atmosphere. Managers must regard profitability, as measured in their income statements, as an important goal and a significant consideration in the judgment of their performance. They should perceive that the transfer prices are just.

A Market Price. The ideal transfer price is based on a well-established, normal market price for the identical product being transferred-that is, a market price reflecting the same conditions (quantity, delivery time, and quality) as the product to which the transfer price applies. The market price may be adjusted downward to reflect savings accruing to the selling unit from dealing inside the company. For example, there would be no bad debt expense, and advertising and selling costs would be smaller when products are transferred from one business unit to another within the company. Although less than ideal, a market price for a similar, but not identical, product is better than no market price at all.

Freedom to Source. Alternatives for sourcing should exist, and managers should be permitted to choose the alternative that is in their own best interests. The buying manager should be free to buy from the outside, and the selling manager should be free to sell outside. In these circumstances, the transfer price policy simply gives the manager of each profit center the right to deal with either insiders or outsiders at his or her discretion. The market thus establishes the transfer price. The decision as to whether to deal inside or outside also is made by the marketplace. If buyers cannot get a satisfactory price from the inside source, they are free to buy from the outside.

This method is optimum if the selling profit center can sell all of its products to either insiders or outsiders and if the buying center can obtain all of its requirements from either outsiders or insiders. The market price represents the opportunity costs to the seller of selling the product inside. This is so because if the product were not sold inside, it would be sold outside. From a company point of view, therefore, the relevant cost of the product is the market price because that is the amount of cash that has been forgone by selling inside. The transfer price represents the opportunity cost to the company.

Full Information. Managers must know about the available alternatives and the relevant costs and revenues of each.

Negotiation. There must be a smoothly working mechanism for negotiating "contracts" between business units.

If all of the above conditions are present, a transfer price system based on market prices would induce goal congruent decisions, with no need for central administration. In the next subsection, we consider situations in which not all of these conditions are present.

Constraints on Sourcing

Ideally, the buying manager should be free to make sourcing decisions. Similarly, the selling manager should be free to sell products in the most advantageous market. In real life, however, freedom to source might not be feasible or, if it is feasible, might be constrained by corporate policy. We now consider the situations in which profit center managers may not have the freedom to make sourcing decisions and the implications of constraints on sourcing on the appropriate transfer pricing policies.

Limited Markets. In many companies, markets for the buying or selling profit centers may be limited. There are several reasons for this.First, the existence of internal capacity might limit the development of external sales. If most of the large companies in an industry are highly integrated, as in the pulp and paper industry, there tends to be little independent production capacity for intermediate products. Thus, these producers can handle only a limited amount of demand from other producers. When internal capacity becomes tight, the market is quickly flooded with demands for the intermediate products. Even though outside capacity exists, it may not be available to the integrated company unless this capacity is used on a regular basis. If the integrated company does not purchase a product on a regular basis, it might have trouble obtaining it from the outside when capacity is limited. Second, if a company is the sole producer of a differentiated product, no outside source exists. Third, if a company has invested significantly in facilities, it is unlikely to use outside sources unless the outside selling price approaches the company's variable cost, which is not usual. For practical purposes, the products produced are captive. Integrated oil companies are good examples of this. The producing unit may be required to send the crude oil to the refining unit, even though the former could potentially sell the crude oil in the open market.

Even in the case of limited markets, the transfer price that best satisfies the requirements of a profit center system is the competitive price. Competitive prices measure the contribution of each profit center to the total company profits. In the case of an integrated oil company, use of crude oil market prices is the most effective way to evaluate the extracting and refining units as if they were stand-alone businesses. If internal capacity is not available, the company will buy outside at the competitive price. The difference between the competitive price and the inside cost is the money saved by producing rather than buying. Moreover, a competitive price measures how well a profit center may be performing against competitors.

How does a company find out what the competitive price is if it does not buy or sell the product in an outside market? Here are some ways:

1.If published market prices are available, they can be used to establish transfer prices. However, these should be prices actually paid in the marketplace, and the conditions that exist in the outside market should be consistent with those that exist within the company. For example, market prices that apply to

relatively small purchases (e.g., a "spot" market) would not be valid for measuring what is essentially a long-term commitment.

2. Market prices may be set by bids. This generally can be done only if the low bidder stands a reasonable chance of obtaining the business. One company accomplishes this by buying about one-half of a particular group of products outside the company and one-half inside the company. The company puts all of the products out to bid but selects half to stay inside. It obtains valid bids because low bidders can expect to get some of the business. By contrast, if a company requests bids solely to obtain a competitive price and does not award contracts to the low bidder, it will soon find that either no one bids or that the bids are of questionable value.

3. If the production profit center sells similar products in outside markets, it is often possible to replicate a competitive price on the basis of the outside price. For example, if a manufacturing profit center normally earns a 10 percent profit over standard cost on the products that it sells to outside markets, it can replicate a competitive price by adding 10 percent to the standard cost of its proprietary products.

4. If the buying profit center purchases similar products from the outside market, it may be possible to replicate competitive prices for its proprietary products. This can be done by calculating the cost of the difference in design and other conditions of sale between the competitive products and the proprietary products.

Excess or Shortage of Industry Capacity. Suppose the selling profit center cannot sell to the outside market all it can produce-that is, it has excess capacity. The company may not optimize profits if the buying profit center purchased from outside vendors while capacity is available on the inside.

Conversely, suppose the buying profit center cannot obtain the product it requires-from the outside while the selling profit center is selling to the outside. This situation occurs when there is a shortage of capacity in the industry. In this case, the output of the buying profit center is constrained and, again, company profits may not be optimum.

If the number of intracompany transfers is small or if the situation is temporary, many companies let buyers and sellers work out their own relationships without central intervention. Even if the number of intracompany

transfers is significant, some senior managements still do not intervene on the theory that the benefits of keeping the profit centers independent offset the loss from suboptimizing company profits.

Some companies allow either the buying or the selling profit center to appeal a sourcing decision to a central person or committee. For example, a selling profit center could appeal a buying profit center's decision to buy a product from outside when capacity was available inside. In the same way, a buying profit center could appeal a selling profit cent&s decision to sell outside. The person or group (called an arbitration committee) would then make the sourcing decision on the basis of the company's best interests. In every case, the transfer price would be the competitive price. In other words, the profit center is appealing only the sourcing decision. It must accept the product at the competitive price.

A word of caution is in order at this point: Given the option, buying profit centers in some companies prefer to deal with an outside source. One reason is the perception that outside sources provide better service. Another reason is the internal rivalry that sometimes exists in divisionalized. companies. For whatever reason, management should be aware of the strong political overtones that sometimes occur in transfer price negotiations. There is no guarantee that a profit center will voluntarily buy from the inside source when excess capacity exists.

To conclude, even if there are constraints on sourcing, the market price is the best transfer price. If the market price exists or can be approximated, use it. However, if there is no way of approximating valid competitive prices, the other option is to develop cost-based transfer prices. These are discussed in the next section.

In arriving at the transfer price, companies typically eliminate advertising, financing, or other expenses that the seller does not incur in internal transactions. This is similar to the practice when two outside companies arrive at a price. The buyer ordinarily will not pay for cost components that do not apply to the contract.

Cost-Based Transfer Prices

If competitive prices are not available, transfer prices may be set on the basis of cost plus a profit, even though such transfer prices may be complex to

calculate and the results less satisfactory than a market-based price. Two decisions must be made in a cost-based transfer price system: (1) how to define cost and (2) how to calculate the profit markup.

The Cost Basis. The usual basis is standard costs. Actual costs should not be used because production inefficiencies will be passed on to the buying profit center. If standard costs are used, an incentive is needed to set tight standards and improve standards.

The Profit Markup. In calculating the profit markup, there also are two decisions: (1) what the profit markup is based on and (2) the level of profit allowed.

The simplest and most widely used base is a percentage of costs. If this base is used, however, no account is taken of capital required. A conceptually better base is a percentage of investment, but calculating the investment applicable to a given product may pose a major practical problem. If the historical cost of the fixed assets is used, new facilities designed to reduce prices could actually increase costs because old assets are undervalued.

The second problem with the profit allowance is the amount of profit. Senior management's perception of the financial performance of a profit center will be affected by the profit it shows. Consequently, to the extent possible the profit allowance should approximate the rate of return that would be earned if the business unit were an independent company selling to outsidesvironment customers. The conceptual solution is to base the profit allowance on the investment required to meet the volume needed by the buying profit centers. The investment would be calculated at a "standard" level, with fixed assets and inventories at current replacement costs.

Upstream Fixed Costs and Profits

Transfer pricing can create a significant problem in integrated companies. The profit center that finally sells to the outside customer may not even be aware of the amount of upstream fixed costs and profit included in its internal purchase price. Even if the final profit center were aware of these costs and profit, it might be reluctant to reduce its own profit to optimize company profit. Methods that companies use to mitigate this problem are described below.

Agreement among Business Units. Some companies establish a formal mechanism whereby representatives from the buying and selling units meet

periodically to decide on outside selling prices and the sharing of profits fbr products with significant upstream fixed costs and profit. This mechanism works only if the review process is limited to decisions involving a significant amount of business to at least one of the profit centers; otherwise, the value of these negotiations may not be worth the effort.

Two-Step Pricing. Another way to handle this problem is to establish a transfer price that includes two charges. First, for each unit sold, a charge is made that is equal to the standard variable cost of production. Second, a periodic (usually monthly) charge is made that is equal to the fixed costs associated with the facihties reserved for the buying unit. One or both of these components should include a profit margin.

Then, a profit allowance based on a return on the variable assets would be added to the standard variable cost for each unit sold.

Following are some points to consider about the two-step pricing method:

• The monthly charge for fixed costs and profit should be negotiated periodically and will depend on the capacity reserved for the buying unit.

• Questions may be raised about the accuracy of the cost and investment allocation. In some situations, assigning costs and assets to individual products is not difficult. In any event, approximate accuracy is adequate. The principal problem usually is not the allocation technique; it's deciding how much capacity to reserve for the various products. Moreover, if capacity is reserved for a group of products sold to the same business unit, there is no need to allocate fixed costs and investments to individual products in the group.

• Under this pricing system, the manufacturing unit's profit performance is not affected by the sales volume of the final unit. This solves the problem that arises when marketing efforts by other business units affect the profit performance of a purely manufacturing unit.

• There could be a conflict between the interests of the manufacturing unit and those of the company. If capacity is limited, the manufacturing unit could increase its profit by using the capacity to produce parts for outside sale, if it is advantageous to do so. (This weakness is mitigated by stipulating that the marketing unit has first claim on the capacity for which it contracted.)

• This method is similar to the "take or pay" pricing that is used frequently by public utilities, pipelines, and coal mining companies, and in other long-term contracts.

Profit Sharing. If the two-step pricing system just described is not feasible, a profit sharing system might be used to ensure congruence between business unit and company interests. This system operates as follows:

1. The product is transferred to the marketing unit at standard variable cost.

2. After the product is sold, the business units share the contribution earned, which is the selling price minus the variable manufacturing and marketing costs.

This method of pricing may be appropriate if demand for the manufactured product is not steady enough to warrant the permanent assignment offacilities, as in the two-step method. In general, this method does make the marketing unit's interest congruent with the company's.

Implementing such a profit sharing system produces several practical problems. First, there can be arguments over the way contribution is divided between the two profit centers, and senior management might have to intervene to settle these disputes. This is costly and time consuming and works against a basic reason for decentralization, namely, autonomy of business unit managers. Second, arbitrarily dividing up the profits between units does not give valid information on the profitability of each unit. Third, since the contribution is not allocated until after the sale has been made, the manufacturing unit's contribution depends on the marketing unit's ability to sell as well as the actual selling price. Manufacturing units may perceive this situation to be unfair.

Two Sets of Prices. In this method, the manufacturing unit's revenue is credited at the outside sales price and the buying unit is charged the total standard costs. The difference is charged to a headquarters account and eliminated when the business unit statements are consolidated. This transfer pricing method is sometimes used when there are frequent conflicts between the buying and selling units that cannot be resolved by one of the other methods. Both the buying and selling units benefit under this method.

However, there are several disadvantages to the system of having two sets of transfer prices. First, the sum of the business unit profits is greater than overall company profits. Senior management must be aware of this situation when approving budgets for the business units and subsequently evaluating

performance against these budgets. Second, this system creates an illusive feeling that business units are making money, while, in fact, the overall company might be losing money because of debits to headquarters. Third, this system might motivate business units to concentrate more on internal transfers where they are assured of a good markup at the expense of outside sales. Fourth, there is additional bookkeeping involved in first debiting the headquarters account every time a transfer is made and then eliminating this account when business unit statements are consolidated. Finally, the fact that conflicts between the business units would be lessened under this system could be viewed as a weakness. Sometimes, conflicts over transfer prices signal problems in either the organizational structure or other management systems. Under the two-sets-of-prices method these conflicts are smoothed over, thereby not alerting senior management to these problems.

Pricing Corporate Services

The costs are charged at all, they are allocated, and the allocations do not include a profit component. The allocations are not transfer prices.

There remain two types of transfers:

1. For central services that the receiving unit must accept but can at least partially control the amount used.

2. For central services that the business unit can decide whether or not to use.

Control over Amount of Service

Business units may be required to use company staffs for services such as information technology and research and development. In these situations, the business unit manager cannot control the efficiency with which these activities are performed but can control the amount of the service received. There are three schools of thought about such services.

One school holds that a business unit should pay the standard variable cost of the discretionary services. If it pays less than this, it will be motivated to use more of the service than is economically justified. On the other hand, if business unit managers are, required to pay more than the variable cost, they might not elect to use certain services that senior management believes worthwhile from the company's viewpoint. This possibility is most likely when senior management introduces a new service, such as a new project analysis

program. The low price is analogous to the introductory price that companies sometimes use for new products.

A second school of thought advocates a price equal to the standard variable cost plus a fair share of the standard fixed costs-that is, the full cost. Proponents argue that if the business units do not believe the services are worth at least this amount, something is wrong 'with either the quality or the efficiency of the service unit. Full cost represents the company's long-run costs, and this is the amount that should be paid.

A third school advocates a price that is equivalent to the market price, or to standard full cost plus a profit margin. The market price would be used if available (e.g., costs charged by a computer service bureau); if not, the price would be full cost plus a return on investment. The rationale for this position is that the capital employed by service units should earn a return just as the capital employed by manufacturing units does. Also, the business units would incur the investment if they provided their own service.

Optional Use of Services

In some cases, management may decide that business units can choose whether to use central service units. Business units may procure the service from outside, develop their own capability, or choose not to use the service at all. This type of arrangement is most often found for such activities as information technology, internal consulting groups, and maintenance work. These service centers are independent; they must stand on their own feet. If the internal services are not competitive with outside providers, the scope of their activity will be contracted or their services may be outsourced completely.

In this situation, business unit managers control both the amount and the efficiency of the central services. Under these conditions, these central groups are profit centers. Their transfer prices should be based on the same considerations as those governing other transfer prices.

Simplicity of the Price Mechanism

The prices charged for corporate services will not accomplish their intended result unless the methods of calculating them are straightforward enough for business unit managers to understand them. Computer experts are accustomed to dealing with complex equations, and the computer itself provides information on the use made of it on a second-by-second basis and at low cost.

There sometimes is a tendency, therefore, to charge computer users on the basis of rules that are so complicated that a user cannot understand what the effect on costs would be if he or she decided to use the computer for a given application or, alternatively, to discontinue a current application. Such rules are counterproductive.

Administration of Transfer Pricing

We have so far discussed how to formulate a sound transfer pricing policy. In this section we discuss how the selected policy should be implemented specifically, the degree of negotiation allowed in setting transfer prices, methods of resolving transfer pricing conflicts, and classification of products according to the appropriate method.

Negotiation

In most companies, business units negotiate transfer prices with each other; that is, transfer prices are not set by a central staff group. Perhaps the most important reason for this is the belief that establishing selling prices and ar riving at satisfactory purchase prices are among the primary functions of line management. If headquarters controls pricing, line management's ability to affect profitability is reduced. Also, many transfer prices require a degree of subjective judgment. Consequently, a negotiated transfer price often is the re sult of compromises made by both buyer and seller. If headquarters estab lishes transfer prices, business unit managers can argue that their low prof its are due to the arbitrariness of the transfer prices. Another reason for having the business units negotiate their prices is that they usually have the best information on markets and costs and, consequently, are best able to arrive at reasonable prices.

If, instead of two business units within a single company, one company had an offer to sell raw material to another company that had a similar sales prospect, the two companies should negotiate in the same fashion. The fact that a transfer price was involved in the first example does not affect how reasonable managers should behave.

Business units must know the ground rules within which these transfer price negotiations are to be conducted. In a few companies, headquarters informs business units that they are free to deal with each other or with outsiders as they see fit, subject only to the qualification that if there is a tie, the business must be kept inside. If this is done and there are outside sources and outside markets, no

further administrative procedures are required. The price is set in the outside marketplace, and if business units cannot agree on a price, they simply buy from, or sell to, outsiders. In many companies, however, business units are required to deal with one another. If they do not have the threat of doing business with competitors as a bargaining point in the negotiation process, headquarters staff must develop a set of rules that govern both pricing and sourcing of intracompany products.

Line managers should not spend an undue amount of time on transfer price negotiations, so these rules should be specific enough to prevent negotiating skill from being a significant factor in determining the transfer price. Without such rules, the most stubborn manager will negotiate the most favorable prices.

Arbitration and Conflict Resolution

No matter how specific the pricing rules are, there may be instances in which business units will not be able to agree on a price. For this reason, a procedure should be in place for arbitrating transfer price disputes. There can be widely different degrees of formality in transfer price arbitration. At one extreme, the responsibility for arbitrating disputes is assigned to a single executive-the financial vice president or executive vice president, for example-who talks to business unit managers involved and then orally announces the price. The other extreme is to set up a committee. Usually such a committee will have three responsibilities: (1) settling transfer price disputes, (2) reviewing sourcing changes, and (3) changing the transfer price rules when appropriate. The degree of formality employed depends on the extent and type of potential transfer price disputes. In any case, transfer price arbitration should be the responsibility of a high-level headquarters executive or group, since arbitration decisions can have an important effect on business unit profits.

Arbitration can be conducted in a number of ways. With a formal system, both parties submit a written case to the arbitrator. The arbitrator reviews their positions and decides on the price, sometimes with the assistance of other staff offices. For example, the purchasing department might review the validity of a proposed competitive price quotation, or the industrial engineering department might review the appropriateness of a disputed standard labor cost. As indicated above, in less formal systems the presentations may be largely oral.

It is important that relatively few disputes be submitted to arbitration. If a large number of disputes are arbitrated, this indicates the rules are not specific enough or are difficult to apply, or the business unit organization is illogical. In short. this is a symptom that something is wrong. Not only is arbitration time consuming to both line managers and headquarters executives, but arbitrated prices often satisfy neither the buyer nor the seller. In some companies, submitting a price dispute to arbitration is so cumbersome that very few are ever submitted. If, as a consequence, legitimate grievances do not surface, the results are undesirable. Preventing disputes from being submitted to arbitration will tend to hide the fact that there are problems with the transfer price system.

Irrespective of the degree of formality of the arbitration, the type of conflict resolution process that is used will also influence the effectiveness of a transfer pricing system. There are four ways to resolve conflicts: forcing, smoothing, bargaining, and problem solving. The conflict resolution mechanisms range from conflict avoidance through forcing and smoothing to conflict resolution through bargaining and problem solving.

Product Classification

The extent and formality of the sourcing and transfer pricing rules depend to a large extent on the number of intracompany transfers and the availability of markets and market prices.

An interesting sidelight of the study is that none of the respondent's used marginal costs, thus showing complete unpopularity of this approach of

TRANSFER PRICING PRACTICES

The earliest study on the subject appears to be the one published by the National Association of Accountants (NAA) in June 1956. National Industrial Conference Board's "Studies in Business Policy No. 122, based on investigation of practices in 190 companies in the United States was published in 1%7. The notable and exhaustive study by David Solomons, published in 1%5, contained a fairly detailed chapter (mostly a theoretical economic analysis) on interdivisional relationship and transfer pricing. All these studies, though highly useful, are descriptive and do not give extensive numerical data on transfer pricing policies and practices employed in the United States.

Most recently, four surveys have been published:

1. BIM's management Survey Report No. 8 by A. Rock (1971)

2. Survey undertaken (on individual basis) by Cyril Tompkins (1973)
3.ICMA study by J.Finnie (1978)
4.FERFstudy (1979)

The major findings of three studies at Nos. 1, 3 and 4 (all these studies give critical data regarding transfer pricing policies and practices) are presented below. Relevant comments are also offered.

Investment Center

Profit centers, by definition, are really not quite like independent firms. Profit centers do not incorporate allocation of invested capital and appropriate cost of such capital. Where the profit-center concept for control Purposes is extended to include such items, the result is known as an investment center. Investment centers may be thought of as profit centers with the addition of an asset base. Investment center is the ultimate extension of the responsibility idea. It is a center in which the head of the center is held responsible for the use of the assets as well as revenues and expenses. In other words, he is expected to earn a satisfactory return on the assets employed in his responsibility center. However, the selection of the appropriate asset base can present difficulties.

Three fundamental questions must be resolved in arriving at an asset base appropriate for a particular investment center:

(a) Which assets should be included?

(directly identifiable non-monetary assets or productive assets)

(b) How should the assets selected be measured? (book value or replacement cost or original cost)

(c) Should the base be assets or net assets?

(Owner's investments/assets employed) (Assets-liabilities)

Essentially, the issue of which assets should be included involves the choice between all assets directly and indirectly involved in the investment center's activities and only those productive assets that are currently in use. Firms that establish investment centers for control purposes rarely decentralize the management of cash, receivables and marketable securities Also, certain fixed capacity assets may be commonly or jointly used with other investment centers, and therefore, not really be controllable.

Investment Centers- Return on Investment and Residual Income.

Investment centers are decentralized divisions or sub-units for which the manager has maximum discretion in determining not only short-term operating decision on product mix, pricing and production methods, but also level and type of investment. An investment center extends the profit center concept in that the measured profit is related to the center's investment. It may be described as a special form of profit center since a profitability measure is being developed for the center. The concept relating profits to assets employed has an intuitive appeal for it for indicates whether the profits generated give sufficiently high return for the capital invested in the division. Capital is always a scare resource, and it is important that an evaluation be made of the returns that a division and the overall company are earning on invested capital. Most companies have elaborate systems for authorizing capital expenditures. Measurement of Investment center performance can be viewed as the evaluation of an aggregation of past and present capital-projects as opposed to the evaluation of each project individually. Such a measurement also provides an incentive for division managers to monitor capital Investments carefully while managing the operations. The managers will also be motivated to watch the levels of inventory and receivables since these accounts will almost always be included in that investment base.

Despite the intuitive appeal of investment centers, many conceptual and measurement problems may arise in the construction of a particular measure. Some of the problems and other key issues are discussed under the following Aspects:

(1) Choice of an appropriate measure: Return on, investment, residual income, and cash recovery rate.

(2) Choice of depreciation method.

(3) Measurement of assets: Current cost or historical cost.

(4) Selection of assets for investment base.

Return on Investment (ROI)

The most common measure of evaluation for an investment center is the return on investment. It is a better test of profitability and is defined in general as the division's

The two major ingredients of ROI are:

$$ROI = \frac{\text{Net income}}{\text{Invested capital}}$$

$$ROI = \frac{\text{Net income}}{\text{Sales (Re-venue)}} \times \frac{\text{Sales (Revenue)}}{\text{Invested capital}}$$

ROI= Net profit ratio x Capital turnover

The ROI is the result of combination of these two, items: NP Ratio and Capital Turnover. An improvement in either without changing the other will improve the ROL

For example

ROI= NP ratio x Capital turnover

There are many positive aspects of ROI computation. It is generally an objective measure based on historical accounting data. It facilitates a comparison among divisions of different sizes and in different lines of business. It is a common measure, since it is similar to a cost of capital for which external referents exist in capital markets, while evaluating, the overall corporate profitability, the use of this measure for evaluating divisional performance encourages goal congruence between the division and the firm.

Actions taken by a division to increase its ROI may often increase the overall profitability. Most important, perhaps, the measure focuses' the division manager's attention on the assets employed in the division and motivates the manager to invest in, assets only to the extent that an adequate return can be earned on them. If a manager were evaluated only on the level of profits, without regard to assets employed, then the tendency would be to expand assets and thereby increase profits. Such actions will lower the ROI and, therefore, will not take place when ROI is used as a performance measure.

Defects of ROI Measure.

Actions that increase the divisional ROI may make the division worse off and, conversely, actions that decrease divisional ROI may increase the economic wealth of the division4br example, assume, the cost of capital to the division mentioned above (with ROI of 25 per cent) is, say 15 per tent. Suppose the division finds an opportunity of a new investment of Rs, 50,M) that will earn Rs. 10,000 per annum. The return on this investment is 20 per cent well above the cost of capital. But the new ROI for the division will be

$$ROI = \frac{50,000 + 10,000}{2,00,000 + 50,000} X\ 100 = 24 \text{ percent.}$$

a decrease from the previous level of 25 per cent. Therefore, the divisional manager may refuse this investment. Conversely, if the division has an asset costing Rs. 50,000 that is earning Rs. 10,000 per year (i.e., 20% return), the division can increase, its ROI by disposing of this asset even if its return is above cost of capital:

$$ROI = \frac{50,000-10000}{2,0,000-50,000} X\ 100 = 26.67 \text{ percent.}$$

A similar problem may arise when two divisions with different investment bases are compared. The, ROI of two divisions say, A and B are 25% and 30% with capital investments of Rs. 2,00,000 and Rs. 100000 respectively. It might appear that division B is profitable. But on closer examination we find that the division A has Rs. 10,000 more in assets with an incremental earnings of Rs. 20,000, Its incremental ROI is 20 percent well above the cost of capital of 15 percent. Hence, division A is more profitable, after deducting capital costs, than division B Unfortunately these things may tempt the divisional manager to manipulate the investment bases in, order to, maximize ROL This problem is caused by evaluating divisional performance attempting to maximize the ratio (ROI).

Residual Income (RI)

To eliminate the problems associated with using a ratio as a performance measure, many companies use the RI approach. RI is the difference between

actual income earned by the division on an investment and the desired income on the investment as specified by minimum desired rate of return. It is calculated as, follows:

RI Actual income- Desired income (Maximum desired rate of return x Invested, capital)

In effect, RI is the excess of earnings above the minimum desired earnings. If the firm sets its minimum rate of return at its cost of Capital, it must earn an ROI that is at least equal to the cost of funds used in making the investment. Any amount of income earned above the cost of capital, is the profit to the firm. The more the income earned above the capital charge, the better off the firm will be. In short, a firm has to maximize its RI

Weaknesses of RI Measure

RI is a less convenient measure than ROI because it is an absolute number, not deflated by the size of the division. It is easier for a much larger division to earn a given amount of residual income than a small division. For example, consider two divisions, one with Rs. 5 lakh in assets and the second with Rs. 10 lakh in assets; both have a cost of capital of 15 per Cent. In order to earn a residual income of Rs. 50,000, the first division would need to earn a net income of Rs. 1,25,000 (an ROI of 25 per cent) whereas the second division would have to earn Rs. 2,00,000 (an ROI of 20 per cent, only). For this reason, most companies using an RI evaluation will not simply direct managers to maximize residual income. Rather they will set budgeted levels of residual income, appropriate for the asset structure of each division, evaluate divisional managers by comparing actual to budgeted residual income. However, this measure also suffers from the same limitation of ROI with regard to the maximization of the economic wealth of the firm.

ROI Vs. RI

RI is favored for reasons of pal congruence and managerial effort. Under ROI the basic objective is to maximize the rate of return percentage. Thus, managers of highly profitable divisio0thay are reluctant to invest in the projects with lower ROI than the current rate because their average ROI would tot reduced. On the other hand, under RI the manager would be inclined to invest in the projects earn more than the desired rate of return.

Present-Value Depreciation Method

(The PV depreciation method is derived directly from the cash flow schedule used for the appraisal capital investments, i.e., from the discounted cash flow (approach). In this way, a periodic ROI performance measure can be determined such that when actual cash flows equal forecasted cash flows, then each year's ROI figure will equal the yield (internal rate of return) of the asset. When an asset yields equal cash flows over its economic life the PV depreciation method will be identified to the annuity depreciation method. The PV method while incorporating the RI computation,, produces more satisfying results. It also offers significant advantages over the straight4ine method for evaluating the performance of investment centers.

Price-Level Changes

The discussion so far was based on stable price level assuming that there have been no changes in the prices of the assets or the net cash-flows of the firm. However, the price level changes have income a common phenomenon and will introduce entirely new distortions into ROI and RI measures. The principal distortions occur because revenues and cash costs arc measured at current prices, while the investment cost and depreciation charge are measured at historical prices used to acquire the assets. Depreciation based on historical cost underestimates what the depreciation charge would be based on the current cost. This results in overstating the firm's income. At the same time, the firm's investment is understated, because most of firm's assets were acquired in precious, years at lower-, price levels than those currently prevailing. The combination of overstated net income and understated investment causes the R01 or RI measures to be much higher than if inflation had not occurred. The increased ROI or RI is not a signal of higher profitability it is mainly due to a failure to adjust for inflationary effects. But when the adequate or satisfactory returns arc caused by under-depreciation of older assets and the failure to restate investment in terms of current cost firms will find that new investment at the current price level yields less than satisfactory return. And divisions with new assets will tend to show lower ROI and RI measures than divisions whose assets were acquired at lower price levels. Unless some adjustment is made to eliminate such inflationary effects, managers will be reluctant to make new investments because of the negative impact on their ROI and RI.

This simple adjustment will remove much of, the inflationary effects from ROI and RI measures. However, many authors and business people consider the method- as unrealistic and recommend for the application of current - replacement cost-measure. Advocates of the second method place more emphasis on producing current and future performance. They claim that replacement cost or market value provides a better estimate of the current investment base of the decision. The simplest way to perform the adjustment to current cost is to use an index specific to each asset class., A number of indices for specific class of assets are published by the Government and trade associations. But these specific indices fail to reflect the changes in technological developments. Hence, measurement of current value can be decided by independent appraisal or by making comparisons to the selling prices of recently traded comparable assets. In making these adjustments, it is important to use an objective method, such as indexing. The objective for making inflation, adjustments must be to prevent enormous distortions in the evaluation of investment-center performance.

Inflation adjustments are needed ford depreciation and cost of goods sold when calculating the net income (or return) figure and for the inventory and fixed capital included in the Investment base. Index methods, either general o r specific, will provide a good basis for making adjustment for inflation while maintaining the objectivity and for manipulation necessary for a system of measuring the divisional performance rationally. Index methods are the least expensive for usage. One more item is the effect of inflation on the cost of capital, which will lower the future value of real rate of return. The cost of capital, therefore, is a1unctio~ of anticipated inflation so that companies should not use a fixed target rate for divisional ROI or to compute capital changes for an RI measure. Necessary adjustments to the divisional cost of capital cost of capital must be, done as part of either the capital budgeting process or performance evaluation measure. Despite the distorting effects o inflation it is revealed by some surveys that in practice inflation adjustments are not widely used by business firms in the divisional performance evaluation exercise.

Capital Expenditure Vs. Revenue Expenditure

For certain, expenditures, especially on intangibles, there discretion as to whether these expenditures should be treated as revenue items or capitalized and amortized over future periods when their benefits are expected to be realized.

There are no hard and fast rules in this regard. When such expenditures with expected future benefits are not4capitalised, the earnings in the short run, will be affected and ROI and RI be overstated since the expenditure on tangibles will not be included in the measured investment base. Hence, divisions with a high proportion of expenditures on intangibles (say, marketing) will tend to show a higher ROI than other divisions with high proportion of tangible assets (say, manufacturing division). Such factors should be taken into consideration while evaluating the divisional performance.

Investment Base

The performance evaluation, measures ROI and RI are very much influenced by the investment base used for the computation of such measures. In determining in the divisions asset base the primary purpose (if performance evaluation i.e., to measure the performance of the division or the divisional managers is to be decided first. If the purpose is to evaluate the divisional manager, then only those assets that are traceable to the division and controlled by the, divisional manager should be included in the investment base. Those assets which are controlled by the central management (e-g. cash) should-be excluded from an evaluation of divisional manager. With this approach, he would be hold responsible for divisional property, plant and equipment, and inventories. If he has control over credit policy and sales terms the divisional receivables should also be, included.

EVA versus ROI

Most of the companies employing investment centers evaluate business units on the basis of ROI rather than EVA. There are three apparent benefits of an ROI measure. First, it is, a comprehensive measure in that anything that affects financial statements is reflected in this ratio. Second, ROI is simple to calculate, easy to understand, and meaningful in an absolute sense. For example, an ROI of less than 5 percent is considered low on an absolute scale, and an ROI of over 25 percent is considered high. Finally, it is a common denominator that may be applied to any organizational unit responsible for profitability, regardless of size or type of business. The performance of different units may be compared directly to one another. Also, ROI data are available for competitors and can be used as a basis for comparison.

The dollar amount of EVA does not provide such a basis for comparison. Nevertheless, the EVA approach has some inherent advantages. There are four compelling reasons to use EVA over ROI

First, with EVA all business units have the same profit objective for comparable investments. The ROI approach, on the other hand, provides different incentives for investments across business units. For example, a business unit that currently is achieving an R01 of 30 percent would be reluctant to expand unless it is able to earn an ROI of 30 percent or more on additional assets; a lesser return would decrease its overall ROI below its current 30 percent level. Thus, this business unit might forgo investment an opportunity that's ROI is above the cost of capital but below 30 percent.

The use of EVA as a measure deals with both these problems. They relate to asset investments whose ROI falls between the cost of capital and the center's current ROL If an investment center's performance is measured by EVA, investments that produce a profit in excess of the cost of capital will increase EVA and therefore be economically attractive to the manager.

A third advantage of EVA is that different interest rates may be used for different types of assets. For example, a low rate may be used for inventories while a relatively higher rate may be used for investments in fixed assets. Furthermore, different rates may be used for different types of fixed assets to take into account different degrees of risk. In short, management control systems can be made consistent with the framework used for decisions about capital investments and resource allocation. It follows that the same type of asset may be required to earn the same return throughout the company, regardless of the particular business unit's profitability. Thus, business unit managers should act consistently when deciding to invest in new assets.

A fourth advantage is that EVA, in contrast to ROI, has a stronger positive correlation with changes in a company's market value.10 Shareholders are important stakeholders in a company. There are several reasons why shareholder value creation is critical for the firm: It (a) reduces the risk of takeover, (b) creates currency for aggressiveness in mergers and acquisitions, and (c) reduces cost of capital, which allows faster investment for future growth. Thus, optimizing shareholder value is an important goal of an enterprise. However, since shareholder value measures the worth of the consolidated enterprise as whole, it is nearly impossible to use it as a performance criterion

for an organization's individual responsibility centers. The best proxy for shareholder value at the business unit level is to ask business unit managers to create and grow EVA. Indeed, Fortune's annual ranking of 1,000 companies according to their ability to create shareholder wealth indicates that companies with high EVA tend to show high market value added (MVA) or high gains for shareholders. When used as a performance metric, EVA motivates managers to increase EVA by taking actions consistent with increasing stockholder value. This can be understood by considering how EVA is calculated. EVA is measured as follows:

EVA = Net profit - Capital charge

Where

Capital charge = Cost of capital * Capital employed (1)

Another way to state equation (1) would be:

EVA = Capital employed (ROI - Cost of capital) (2)

The following actions can increase EVA as shown in equation (2): U) increase in ROI through business process reengineering and productivity gains, without increasing the asset base; (ii) divest assets, products, and/or businesses whose R01 is less than the cost of capital; (iii) aggressive new investments in assets, products, and/or businesses whose ROI exceeds the cost of capital; and (iv) increase in sales, profit margins, or capital efficiency (ratio of sales to capital employed), or decrease cost of capital percentage, without affecting the other variables in equation (2). These actions clearly are in the best interests of shareholders.

Additional Consideration in Evaluating Managers

If gross book value is used, a business unit can increase its EVA by taking actions contrary to the interests of the company. If net book value is used, EVA will increase simply because of the passage of time. Furthermore, EVA will be temporarily depressed by new investments because of the high net book value in the early years. EVA does solve the problem created by differing profit potentials. All business units, regardless of profitability, will be motivated to increase investments if the rate of return from a potential investment exceeds the required rate prescribed by the measurement system.

Moreover, some assets may be undervalued when they are capitalized, and others when they are expensed. Although the purchase cost of fixed assets is ordinarily capitalized, a substantial amount of investment in start-up costs, new product development, dealer organization, and so forth may be written off as expenses and, therefore, will not appear in the investment base. This situation applies especially to marketing units. In these units the investment amount may be limited to inventories, receivables, and office furniture and equipment. When a group of units with varying degrees of marketing responsibility are ranked, the unit with the relatively larger marketing operations will tend to have the highest EVA.

Considering these problems, some companies have decided to exclude fixed assets from the investment base. These companies make an interest charge for controllable assets only, and they control fixed assets by separate devices. Controllable assets are essentially working capital items. Business unit managers can make day-to-day decisions that affect the level of these assets. If these decisions are wrong, serious consequences can occur quickly: For example, if inventories are too high, unnecessary capital is tied up and the risk of obsolescence is increased; if inventories are too low, production interruptions or lost customer business can result from the stock-outs.

Investments in fixed assets are controlled by the capital budgeting process before the fact and by post completion audits to determine whether the anticipated cash flows in fact materialized. This is far from completely satisfactory because actual savings or revenues from a fixed asset acquisition may not be identifiable. For example, if a new machine produces a variety of products, the cost accounting system usually will not identify the savings attributable to each product.

Evaluating the Economic Performance of the Entity

Discussion to this point has focused on measuring the performance of business unit managers. Reports on the economic performance of business units are quite different. Management reports are prepared monthly or quarterly, whereas economic performance reports are prepared at irregular intervals, usually once every several years. For reasons stated earlier, management reports tend to use historical information actual costs incurred, whereas economic reports use quite different information. In this section we discuss the purpose and nature of the economic information.

Economic reports are a diagnostic instrument. They indicate whether the current strategies of the business unit are satisfactory and, if not, whether a decision should be made to do something about the business unit--expand it, shrink it, change its direction, or sell it. The economic analysis of an individual business unit may reveal that current plans for new products, new plant and equipment, or other new strategies, when considered as a whole, will not produce a satisfactory future profit, even though separately each decision seemed sound when it was made.

Economic reports are also made as a basis for arriving at the value of the company as a whole. Such a value is called the breakup value-that is, the estimated amount that shareholders would receive if individual business units were sold separately. The breakup value is useful to an outside organization that is considering making a takeover bid for the company, and, of course, it is equally useful to company management in appraising the attractiveness of such a bid. The report indicates the relative attractiveness of the business units and may suggest that senior management is misallocating its scarce time-that is, spending an undue amount of time on business units that are unlikely to contribute much to the company's total profitability. A gap between current profitability and breakup value indicates changes may need to be made. (Alternatively, current profitability may be depressed by costs that will enhance future profitability, such as new product development and advertising, as mentioned earlier.)

The most important difference between the two types of reports is that economic reports focus on future profitability rather than current or past profitability. The book value of assets and depreciation based on the historical cost of these assets is used in the performance reports of managers, despite their known limitations. This information is irrelevant in reports that estimate the future; in these reports, the emphasis is on replacement costs.

Conceptually, the value of a business unit is the present value of its future earnings stream. Estimating cash flows for each future year and discounting each of these annual flows at a required earnings rate calculate this. The analysis covers five, or perhaps ten, future years. Assets on hand at the end of the period covered are assumed to have a certain value-the terminal value, which is discounted and added to the value of the annual cash flows. Although these estimates are necessarily rough, they provide a quite different way of looking at the business units from that conveyed in performance reports.

OBJECTIVES OF BUDGETORY SYSTEM

1.To combine the ideas of all levels of management in the preparation of the budget.

2. To coordinate all the activities of the business.

3. To centralize control.

4. To decentralize responsibility to each manager involved.

5. To act as a guide for management decision-making when unforeseeable conditions affect the business.

6. To plan and control income and expenditure so that maximum profitability is achieved.

7. To direct capital expenditure in the most profitable direction.

8, To ensure that sufficient working capital is a available for the efficient operation of the business.

9. To provide a yardstick against which actual results can be compared.

10. To show management where action is needed to remedy a situation.

Essentials of an Efficient Budgetary Control

Realistic Budget. The quality of the budget is very important for the successful operation of budgetary control. It should be realistic and operationally feasible. Flexible budget is normally a good budget as it takes into consideration the dynamics of the business. It insist be based on what is attainable, must suit the organizational facilities and complexities and must be flexible to accommodate the changing environment of the business. ,

Qualitative and Timely Reporting. Variances must be analyzed, interpreted and reported in a manner, which is easily understandable. Reporting must be on time and bring out significant areas/points and be precise, simple and meaningful. Time is the essence of reporting and maintenance of time schedule enhances the value of reporting and leads to correction 'of many adverse events/trends which otherwise would have taken a heavy toll.

Management's Attitude. The management must have a positive attitude towards budgetary control. Any scheme of control is a discipline and regulation. Management must have faith and confidence in the scheme. Management must

take keen interest in the scheme of budgetary control and render whole-hearted support and co-operation in making this a success.

Advantages of Budgetary Control

The following are some of the most significant advantages of budgeting:

1. Budgeting compels management to plan for the future, the budgeting process forces management to look ahead and become more-effective and efficient in administering business operations. It instills into managers the habit of evaluating carefully their problems and related variables before making any decisions.

2. Budgeting helps to coordinate, integrate, and balance the efforts of various departments in the light of the overall objectives of the enterprise. This results in goal congruency and harmony among the departments.

3. Budgeting facilitates control by providing definite expectation in the planning phase that can be used as a frame of reference for judging the subsequent, performance. Undoubtedly, budgeted performance is a more relevant standard for comparison than past performance, since past performance is based on historical factors, which are constantly changing.

4. Budgeting improves the quality of communication. The enterprise's objectives, budget goals, plans, authority and responsibility and procedures to implement plans are clearly written and communicated through budgets to all individuals in the enterprise. This results in better understanding and harmonious relations among managers and subordinates.

5. Budgeting helps to optimize the use of the firm's resources, both capital and human. It aids in directing the total efforts of the firm into the most profitable channels.

6. Budgeting increases the morale and thereby the productivity of the employees by seeking their meaningful participation in the formulation of plans and policies, bringing about a harmony between individual goals a rid the enterprise's objectives, and by providing incentives for better performance.

7. Budgeting develops profit-mindedness and cost consciousness.

8.Budgeting permits -the management to focus attention on significant matters through budgetary reports. Thus, it facilitates management by exception and thereby saves the management's time and energy.

9. Budgeting measures efficiency and thereby, enables self-evaluation by, the management; it also indicates the progress made in attaining the enterprise's objectives.

Problems of the Budgeting System

The major problems in developing a budgeting system are:

1 Getting the support kind involvement of all levels of management.

2. Developing meaningful forecasts and plans, especially the sales plan.

3. Inducing all individuals to get involved in the budgeting process, and gaining their full participation.

4. Establishing realistic objectives, procedures and standards of desired performance.

5. Applying the budgeting system in a flexible manner.

6. Maintaining effective follow-up procedures, and adapting the budgeting system to changing circumstances.

Limitations of Budgetary Control

Management must consider the following limitations in using the budgeting system as a device to solve managerial problems:

1. Budgeting is not an exact science; its success depends upon the precision of estimates. Estimates are based on facts and managerial judgment. Managerial judgment can suffer from subjectivity and personal biases. The efficacy of budgeting thus depends upon the quality of managerial judgment.

2. A perfect system of budgeting cannot be organised in a short period. Business conditions change rapidly. Therefore, the budgeting system should be continuously- adapted to changing circumstances. Budgeting has to be a continuous expertise; it is a dynamic process. Management should not lose patience; it should go on trying various techniques and procedures in developing and using the budgeting system.

3. A skillfully prepared budget system will not by itself improve the management of an enterprise unless it is properly implemented. For the success of the budgetary system, it is essential that all understands it, and that the managers and subordinates put in concerted efforts for accomplishing the budget

goals. All persons in the enterprise must be fully involved in the preparation and execution of but it's, otherwise being not be effective.

4. Budgeting is a management tool, a way of managing, not the management itself. Me presence of a budgetary system should not make management complacent. To get the best results, management should use budgeting with intelligence and foresight, as long with other managerial techniques. Budgeting assists management; it cannot replace management.

5. Budgeting will be ineffective and expensive if it Is unnecessarily detailed and complicated. A budget should be precise in format and simple to understand; i' should be flexible in application.

6. The purpose of budgeting will be defeated if the budget goals are set carelessly. Budget goals are the definite targets to achieve the overall objectives of the enterprise. They must be -in harmony with the aims of the enterprise.

7. Budgeting will hide inefficiencies instead of revealing them if there is no evaluation system 'Mere should be, continuous evaluation of the actual performance. The standards should also be re-examined regularly. & Budgeting will lower the morale and productivity of the personnel if unrealistic targets are set and if it is used as a pressure tool. To some extent budgeting may be used as: a pressure device but its went must be carefully determined.

Functional and Dysfunctional Aspects of Budget System

Like other control methods, budgets have the potential to help management to reach their goal, How useful budgets are, in practice depends on how effectively they are conceived and Implemented. It is also important that the budgeting process is clear and acceptable to the people whose activities it Controls.

Potentially Functional Aspects of Budgets,

One noted author has described some of the potentially functional aspects of budgets as follows:

(a) Motivation. Budgets can have a positive impact on motivation and morale. Most individuals in an Organization desire to achieve things and recognition by groups to which they belong. Budgets can activate these motivational factors by creating common goals and the feeling that everyone is working towards them.

(b) Coordination. Budgets make it possible to coordinate the work of the entire Organization. A comprehensive budget is a blueprint of an Organization's plans

for the future and the -top management can, therefore, use it to together the activities of every unit.

(c) A warning device. Budgets can be used as a warning device for making corrective action. As a control mechanism it alerts the appropriate organization members when a standard has been violated. IL, for example, actual cost exceeds the budget significantly then managers know that some corrective action should be taken.

(d) Learning source. The budget system helps poop le learn from experience. And the budget period is over, managers. Can analyze the actual and identify variances and their causes and take necessary corrective actions in the next budget period.

(e) Rational resource allocation - Budgets can improve resource allocation. In the budgeting process all requests for resources should be clarified and logically supported. The need to quantify their plans compels the managers to examine the available resources more carefully and allocate them rationally. Further more, it encourages the, department or section head to closely watch the utilization of resources and thereby eliminate the waste and pilferage.

Communication. Budgets improve communication. To put the plan into action, effective communication is essential. In the process of developing the budget with those responsible for its implementation, managers can communicate their own objectives and plans more effectively.

(g) Help lower-level managers. Budgets help lower-level managers see where they fit in the Organization. The budget gives these managers goals around which to organize their activities. In addition, it indicates what organizational resources will be made available to them,

(h) Means of evaluation. Budgets provide measures of evaluation. Performance can more easily be measured against previously established budgetary standards.

(i) Show the direction. Budgets let new people see where the organization is going. This aspect of budgets can enhance the morale of junior managers because it helps them become acclimated to the organization goals and priorities.

Potentially Dysfunctional Aspects of Budgets

Sometimes the budget system may create unintended and unanticipated results. These dysfunctional aspects may, interfere with the attainment of organization's goals. Some of the dysfunctional aspects are as follows:

(a) Differing perceptions of budgets by organization members. Supervisors may view budgets as unfair because they are used to evaluate results without investigating the reasons for a success or failure. Budgets would be, considered fair if reasons for budget deviation and mitigating circumstances were taken into account. Sometimes, performance reports are difficult to understand and therefore they cannot respond to the criticisms the reports may contain. ,

(b) Mechanical considerations. Certain potentially negative effects of budgets can he traced, to the mechanics of budgets and the budgeting process. For instance, there are expenses involved in installing and operating a budget system. If these costs outweigh the benefits derived from the system, the organization's goals are riot being effectively achieved.

(c) Communication and budgets. The actual performance of employees is being appraised only at the end of the budget period and the deviations may not be communicated to them until the budget period is over. Hence, the employees do not get the opportunity to learn from their mistakes and to initiate corrective action then and there. As a result, budgets may be regarded as a rating tool or as a device for catching mistakes.

(d) The motivational impact of budgets. Budgets are believed to be a good motivational device. Managers often try to motivate employees to high performance by promising more rewards or applying verbal pressure. The budgeting process also increases the pressure on employees. Employees, who may begin to resist and resent them, generally feel these pressures for increased efficiency. They may even find ways to minimize their growing workload and protect themselves, from censure. Inter-departmental strife may increase, with every supervisor trying to blame budget deviations on some one else. Scapegoating may increase, as line people blame staff members for budget deviations or production department members blame sales -people for a poor sales record.

(e) Goal difficultly and goal achievement. Budget goals are normally perceived as high and budgetary allocations as highly inadequate. One generally accepted

line for effective budgeting is to establish goals that are difficult but attainable. Such goals might inspire the employees to improve their performance.

Organization for Budgetary Control

It is essential that there should be an efficient organization if budgetary control is to be operated effectively. Budgetary control is not only an accounting, exercise, but also a tool, of management at all levels. In organizing a system, it is essential to obtain the full co-operation of each member of the management team. A number of preliminaries will be necessary if the staff is to have confidence in the system; these include:

1. Creation of budget centers. Centers or departments should be established for each of which budgets can be set with the help of the head of department concerned. A budget center is a center or department or a segment of an organization for which budgets are prepared. Budgets should be set with the help of the heads of these centers so that these may be implemented more effectively.

2. Introduction of adequate counting records. It is imperative that the accounting system should be able to record and analyze the information required. A chart of accounts should be maintained which corresponds with the budget centers.

3. All personnel should be trained in operating the system. Each person must. Know what a budget is, what, it has to accomplish land how he fits into the plan. He must feel that he is capable of handling the budget centers.

4.Preparation of an organization chart. This defines the functional responsibilities of each member of the mismanagement and ensures that he knows, his position in the company and his relationship with other members.

The organization chart will obviously depend upon in the nature and size of the company. Other budgets such as the raw materials or labor budgets may be prepared by heads of departments, for example by the accountant, in conjunction with the production manager. It should be appreciated that in the preparation of each of these budgets the accountant will, play a big part, especially those activities involving costs, such as the sales cost budget. Heads of departments will prepare budgets.

5. Establishment of a budget committee. In small companies a budget officer or the accountant may coordinate all the work connected with budgets, but in large

companies a budget committee is often established to formulate a general programme for preparing budgets and exercising overall control.

The main function of the committee is:

(a) To provide historical information to help managers in forecasting.

(b) To issue instructions regarding budget requirements, final dates for the receipt of budgets, etc.

(c) To define the general policies of management in relation to the budget.

(d) To advise in the preparation of budgets.

(e) To review budgets.

(f) To suggest revisions and amendments to budgets.

(g) To approve budgets.

(h) To ensure that budgets are submitted in due time.

(i) To prepare budget summaries wherever necessary.

(j) To prepare the master budget after functional budgets have been approved.

(k) To analyze comparison of budgeted and actual results, and to recommend corrective action where necessary-:

(l) To coordinate the budget programme.

6. Preparation of budget manual This is defined (by the as, a document which sets out the responsibilities, of the persons engaged in the routine of, and the forms and records required for budgetary control. It is usually in loose-leaf form so that alternations can easily be made as and when required; appropriate sections can be issued to executives requiring them. An index will be provided so that information can be located quickly. Such a manual will usually prove invaluable, as it will include information such as:

(a) Description of the system and its objectives.

(b) Procedure to be adopted in operating the system.

(c) Definition of responsibilities and duties.

(d) Reports and statements required for each budget period.

(e) The accounts code in use.

(f) Deadline by which data are to be submitted.

7. Budget period. There is no "right" period for any budget. Budget periods may be short term and long term. If business experiences seasonal fluctuations, the budget period will probably, extend over one seasonal cycle. If this cycle covers say two or three years, the long-term budget would cover that period, while the short-term budgets would, perhaps be prepared on a monthly basis for control purposes. Short-term budgeting is usually costly to prepare and operate, while long-term budgeting may be considerably affected by unforeseen conditions. Budget periods frequently used in industry vary between one-month and one year, the latter probably being the most commonly used as it fits in. with the normally accepted accounting period. However, forecasts of much longer periods than a year may be used In the case of capital expenditure budgets, for example, which must be planned well in advance. A common practice in industry is to have a series of budget periods. Thus, the sales budget may cover the next five- years, while production and cost budgets may cover only one year. These yearly budgets will be broken down into quarterly or even monthly periods. Where long-term budgets are operated it is usual to supplement them with short terms ones.

8. Key factor. This is the factor whose influence must first be assessed in order to ensure that functional budgets ate reasonably capable of fulfillment. The key factor, known variously as the "limiting" or "governing" or "principal budget" factor, is of vital importance, It may not be the same for each budget period, as the circumstances may change. It determines priorities functional budget Among the many key factors, which may affect budgeting are the following

(a)Materials

(i) Availability

(ii) Restrictions imposed by license, quotas, etc.

(b) Labor

(i) General shortage

(ii) Shortage, in certain key processes.

(c) Plant

(i) Insufficient capacity due to lack of capital

(ii) Or lack of space

(iii) Or lack of markets

(iv) Bottlenecks in certain key process.

(d) Sales

(i) Low market demand.

(ii) Shortages of experienced salesmen.

(iii) Insufficient advertising due to lack of money

(e) Management

(i) Lack of capital, restricting policy.

(ii) Lack of know-how.

(iii) Inefficient executives.

(iv) Insufficient research into product design and methods.

The factor, which is most often, the key factor in industry is probably the sales demand. Very often the success or otherwise of budgetary control rests on the forecast of sales during the budget period. If the sales figure proves to be inaccurate, most of the budgets will be affected.

9. Level of activity. It will be necessary to establish the normal level of activity, that is the level the, company can reasonably be expected to achieve. This level is important in forecasting, for example, material and labor requirements, and particularly production overhead budget, which are to be recovered on machine-hour rates.

Classification of Budgets

Though budgets can be classified according to various points of view the following bases of classification are generally in vogue:

(a) Classification according to time factor;

(b) Functional classification; and

(c) Classification according to flexibility factor.

(A) Classification according to Time Factor

In terms of time factor, budgets are broadly of the following three types:

(1) Long-term Budgets. They are concerned with planning the operations of a firm over a perspective of five to ten years. They are usually in the form of physical quantities.

(2) Short-term Budgets. They are usually for a period of a year or two and are in the form of production plan in monetary terms. ,

(3) Current Budgets. They cover a period of a month or so and as short-term budgets; they get adjusted to prevailing circumstances. Sometimes, within the framework of a short-term budget, there are quarterly plans, which are prepared by recasting the budget for a still shorter period on the basis of the performance of the immediate past. In a way, these quarterly budgets are meant to be an elaboration of the annual budget.

(B) Functional Classification

According to this basis of classification, budgets correspond, and are co-terminus, with a particular function and arc integrated with the master budget of the business. These are called functional budgets whose number depends, on the size and nature of the business. The usual functional budgets of a business are:

(1) Sales Budget. This is a forecast of total sales, classified according to groups of products, salesmen and geographical locations.

(2) Selling and Distribution Cost Budget. This is a forecast based on sales, productive capacity and requirements of inventories, etc.

(3) Introduction Cost Budget. This is related to the cost of production, including direct material cost, direct labor cost and expenses - fixed, variable and semi-variable.

(4) Purchase Budget. Correlated with sales forecast and production planning, it deals with purchase that is required for planned production. Purchase would include both direct and indirect materials and goods.

(5) Personnel Budget. This has reference to the utilization of men and would include labor employed in productive activity. This would be split up between direct and indirect labor.

(6) Research Budget. This relates to improvement in the quality of the products or research for new products.

(7) Cash Budget. This is a sum total of the requirements of cash in respect of various functional budgets as well as anticipated cash receipts.

(8) Plant Utilization Budget. This is intended to -cover -the plant and machinery requirements to meet the budgeted production during the period. Schedules will be produced showing the available load in each department expressed in standard -hours or units.

(9) Office and Administration Budget This budget represents costs of all administrative expenses, such as managing director's salary, staff salaries and expenses of office management like lighting and cleaning.

(10) Capital Budget. This is a forecast of outlay of fixed assets as also of the sources of capital budget.1t may differ from that of other budgets as, such expenditure is frequently planned a number of years in Advance.

(11) Master Budget. This ultimate integration of separate, budgets by the accountant provides the Master Budget, which includes estimated profit and loss account for the future period, and an estimated Balance Sheet at the end thereof.

(C) Classification according to Flexibility

(1) Fixed Out. This is budget in which targets are rigidly fixed. Such budgets are usually prepared from one to three months in advance of the fiscal year to which they are applicable. Thus, twelve months or more may elapse before figures forecast for the December budget are used to measure actual performance. Many things may happen during this intervening period and they may make the figures go widely out of line with the actual figures. Though it is true that a fixed, or static budget as it is sometimes called, can be revised whenever the necessity arises, it smacks of rigidity-and artificiality so far as control over costs and expenses are concerned. Such budgets are preferred only where sales can be forecast with the greatest of accuracy which means, in' turn, that the cost and expenses in relation to sales can be quite accurately ascertained.

(2) Flexible Budget. The figures used in this form of cost and expenses budget are made adaptable to any given set of operating conditions within any month of the fiscal year. The figures range from the lowest to the highest probable percentages of operating performance. From this point of view, a flexible budget prepared for an expenses group can be for the entire fiscal year, or as long as there is no need of material changes in the standards. Thus, the flexible budget

provides a distinct advantage over the static budget particularly where it is difficult to forecast sales, costs and expenses with any degree of accuracy.

PREPARATION OF BUDGETS

Sales Budget

This is a forecast of total sales expressed and incorporated in quantities and/or money. A sales budget may be prepared by expressing turnover under any one or combination of the following:

(1) Product or product group;

(2) Territories, areas and countries;

(3) Types of customers, e.g., National, Government, export, home, wholesale or retail;

(4) Salesmen, agents or representatives, and

(5) Period, such as quarter's months, weeks, etc.,

A sales budget may be prepared with the help of any one or more of the following method:

(1) Analysis of past sales with-adjustment for current conditions.

(2) Field estimates by own sales staff.

(3) Analysis of the potential market for the firm's products.

(4) Studying the impact of other sundry factors affecting the sales budget

(1) Analysis of past sales. Analysis of past sales for a number of years, say 5 to 10 years, viz, long-term trend, seasonal trend, cyclical trend, sundry other factor The long-term trend represents the movement of the fortunes of a business over many year The seasonal trend may affect many types of business and hence this factor must be taken into account when studying figures for consecutive months over a number of years. The cyclical trend represents the fluctuations in the business activity due to the effect of the trade cycle. In order to study the cyclical trend it is desirable to disregard the effects of the long-term and seasonal trends. Sundry factors include, such as a strike in the industry or a serious fire or flood. From such analysis it will be possible to suggest future trends. In analyzing such sales, considerable help can be obtained from statistical reports produced by the trade units and commercial intelligence units, government publications, etc.

(2) Field estimates by own sales staff. The salesman in each area should have an intimate knowledge of the factors likely to affect his sales in the next few months of years. He can probably make a guess about the unsold stock in the shops of his customers. He is then in a position to make an estimate of future sales. When such estimates are available for a number of years, the actual sales for the year can be compared with the estimated sales and a correction factor calculated to allow for each salesman's tendency to over-estimate.

(3) Analysis of the potential market. Market research people may report on the state of the market, population in area, fashion, trends, the type of products design required by customers, purchasing power of people, activities of competitors and the prices the consumers are likely to pay.

(4) Studying the impact o factors affecting sales. Any change in the company policy or-methods should always be considered. For example, introduction of special discounts, special salesmen, a new design of the product, new or additional advertising campaigns, improved deliveries; after-sales service should have some market effect on a sales budget. While preparing such forecasts, the sales manger must consider the opinion of divisional managers and other sales staff, the budget officer and the accountant. It will be observed that the preparation of a sales budget involves many factors and calls for a high degree of knowledge of conditions, and of ability to deduce from the known facts and various estimates the probable course of sales over the budget period. If sales were the principal budget factor, then the sales budget is prepared first. If production is the key factor, the production budget should be built up first and the sales budget must be drawn up within the limits Imposed by the production budget.

Production Cost Budget

A production cost budget summarizes the materials, budget, labor budget, and, factory overhead budget, and may be expressed and analyzed by departments and/or products. A production cost budget shows the estimated cost of carrying out the production plans and programmes set out in production budget. It shows the following:

(1) Material cost from materials budget,

(2) Labor cost from labor budget, and

(3) Factory overhead-sub-divided into fixed, variable and semi-variable costs, from factory overhead budget.

Departments and/or products according to convenience analyze these costs.

Purchase Budget

A Purchase Budget gives the details of the purchase, which must be made to meet the needs of the business. It includes items of purchase, such as raw materials, indirect materials and other equipments. The purchase budget for raw materials is the most important and the following factors are required to be considered in preparing this budget:

(1) Opening and closing stocks

(2) Unfulfilled orders at the beginning of the budget period

(3) Storage space, economic buying quantity, and financial resources and

(4) The prices to be paid.

Cash Budget

A complete system of budgetary control makes the construction of cash budget easy. It is one of the functional budgets, which is prepared along with other budgets. There are three recognized methods of preparing a cash budget.

(a) The Receipts and Payments Method;

(b) The Adjusted Profit and Loss Methods, and

(c) The Balance Sheet Method.

Receipts and Payments Method

Under this method, all actual possible items of each receipt and payment for the budgeted period are considered. Sources of information are the various other budgets. For example, (a) Sales from the sales budget, and (b) Materials, hour, overhead expenditure and capital expenditure, etc., from the concerned budgets.

Cash receipts from sales, debtors, income from sales of assets, and investments and probable borrowings should be forecast and brought into cash budget. Any lag in payment by debtors or by others shall be considered ascertaining further cash inflows.

Cash requirement forecast Total cash outflows are taken out form operating, budgets for the elements of cost and from capital expenditure budget for the purchase of fixed assets. Adjustment is to be made for any lag in payments.

Adjusted Profit and Loss Method

Compared with the previous method, this method is less detailed and more difficult to comprehend. It is particularly useful for the long-term forecasts, say for a period of over three years. It is called thus, because it transforms the profit and loss account into cash forecast. The basic assumption in this method is that any increase or decrease in cash balance is due to profit or loss of the business. All non-cash items such as depreciation, write-offs or write-ups, etc., are mainly adjusted to the net profit. The theory, under this method, is based on the assumption that profit is cash. If there were no credit transactions or transactions resulting in capital profits, the balance of profit on the Profit and loss Account should be equal to the balance of cash in the cashbook. Such a situation, however, will never exist in practice in any business. Hence all adjustments with regard to the above items are to be made in the cash forecast. Sources of information are the firm's profit and loss account and balance sheet.

Balance Sheet Method

The same theoretical assumption of the adjusted profit and loss method holds good in this method also. Under this method, a budgeted balance sheet is prepared showing all items of assets and Liabilities except cash balance. The balancing figure is considered to represent cash balance. If there is excess of liabilities over assets, the balance is ordinary cash balance; if there is excess of assets over-liabilities, the balance is assunw4 to be bank overdraft. Of these three methods, the first method is mostly preferred because it is a short-term format and is much more detailed than the other two methods, which are nominally, used as long-term forecasts.

Flexible Budgets

In those Industries where the pattern of demand is stable, a fixed budget may be adequate, especially where the budget period is comparatively short. In such it is possible to forecast sales with a considerable degree of accurate are many undertakings where stable conditions are absent. In such fluctuations in output might lead to violent deviations from the budget. In such concerns it is usual to adopt the flexible budgetary technique.

A flexible budget is a budget, which is designed to change in accordance with the levels of activity actually attained. If flexible budgeting is adopted, a series adopts, would be, and compiled to cover the range of levels of activity possible. In such budgets division of costs and expenses into fixed and variable is extremely important.

The underlying principle of a flexible budget is that for, any given volume of business there should be some norm of expenditure and that norm should be known beforehand to provide a guideline to actual expenditure. To recognize this principle is to accept the fact the every business is dynamic, and ever-changing. It is futile to expect a business to conform to, a fixed, pre-conceived pattern. Preparation of flexible budgets result in the construction of a series of formula, one for each department or cost center. The formula for each account indicates the fixed amount and/or at variable rate. The fixed amount remains constant regardless of activity. The variable portion of the formula is a variable rate expressed in relation to a base such as direct labor hours, direct labor cost, or machine hours.

PERFORMANCE BUDGETING (PB)

Meaning of PB

Performance budget may be defined as a budget based on functions, activities and projects. Performance Budgeting may be described as a budgeting system. Where under input costs are related to the end results, are related to the performance. According to the national Institute of Bank Management, Bombay, Performance Budgeting is the process of analyzing, identifying, simplifying and crystallizing specific performance objectives of a job to be completed over a period, in the framework of the organizational objectives, the purpose and objectives of the job. It involves evaluation of the performance of the organization in the context of both specific as well as overall objectives of the organization.

Operational Steps in PB

(a) Formulation of objectives of the agency/department.

(b) Identification of various programmes projects, which will, help, the Agency to, achieves its objective.

(c) Evaluation, of the programmes in term of the benefits, that they produce compared to the resources that-they consume.

(d) Selection of the programmes on the basis of cost benefit analysis in order to utilize, the funds in optimal manner

(e) Development of performance criteria for the various. Programmes (suitable work measurement units, norms, yardsticks, standard and other performance indicators).

(f) Preparation of long-term physical as well as financial plans.

(g) Preparation of the annual budget.

(h) Assessment of performance of each programme and by each responsibility unit and comparison of the same with the budget.

(i) Undertaking periodical review of programmes with a view to assess the strengths and weaknesses and make modification, if necessary.

Programme Budgeting

Programme budgeting was first evolved in United States. In Britain it is referred to a output Budgeting. It is mainly useful to government departments and non-profit organizations. In programme budgeting special emphasis is laid on formulation of different budgets for different programmes. It utilizes a planning and budgeting process in an output-oriented programme format; which is oriented to its objectives to facilitate developing and evaluating alternatives. It leads to the allocation of resources over a planning period. Programme budgeting integrates all of the organizations planning activities and budgeting into total system.

Programme Budgeting Process

First, programmes are identified for achieving different goals of the organizations. Then, each programme is divided into different elements. Resources such as materials, men, machines, utilities, etc., are allocated to various programmes over the period. The emphasis is continuously placed on analysis of alternatives (including existing programmes) and estimating cost of accomplishing objectives and fulfilling purposes and needs. The steps involved in the programme budgeting may be listed as follows:

(a) Identification of programmes required fulfilling the mission.

(b) Identification of programme elements.

(c) Allocation of resources to programmes.

(d) Utilizing forecast studies analysis. Mostly multi-year forecasts are considered in programmed budgeting.

(e) Measuring the actual performance of approved programmes and comparing with budget performance. .

In the case of non-profit organizations, output indicators are to be developed because output cannot be measured in monetary terms. For example, for training programme the output indicator may be in terms of number of employees trained for health programme, output indicator may be reduction in disease. The programme budget, however, does not eliminate the need for traditional budget. It adds only a new dimension to planning and budgeting system. A traditional budget can be divided into a number of programme budgets.

Traditional Budgeting Vs. Programme Budgeting

Traditional budgeting involves establishment of functional budgets and their integration into master budget. It works well, in profit-oriented organizations. While, it emphasizes the method and means used, the programme budgeting stresses the purpose and objectives of the programme Program me budgeting is not only a, linkage system for planning and budgeting but also a strategic decision-making for allocating resources. It provides the decision makers with relevant data appropriately structured into object-oriented format and analysis into decision-making mode.

Performance Budgeting Vs. Programme Budgeting

The Performance budgeting is a backward-looking approach and is based on the past Information and prior accomplishment whereas programme budget forward-looking approach. Programme budgeting is useful for review of decision-making at and above the departmental level. It is adapted to the requirement by overall budgetary planning.

2. Performance budget has drawn much of its form from cost accounting scientific management. In contrast, programme budgeting had drawn its core of ideas from economic and systems analysis.

3. A performance budget is normally considered as a. a work programme said as a tool of management but a programme budgeting is considered, as a statement of policy and allocation process among competitive claims.

Zero Based Budgeting (Z0B)

Traditional budgeting starts with previous year expenditure level as a base and then discussion is focused on certain "additions" or "cuts" to be made in the previous year spending. The top management finally gives its approval after hearing the arguments for and against the "additions and "cuts". In ZBB reference, is not made to previous level of spending. A convincing case is made for each decision unit to justify the budget allotment for that unit during that period. ZBB differs from traditional budgeting on many points and following are a few points of difference between the two systems of budgeting:

Traditional Budgeting

Traditional budgeting is accounting-oriented and mainly lays its emphasis on previous year expenditure. ZBB is decision-oriented and makes all projects and programmes old and new to complete for scarce resources.

2. In traditional budgeting, past expenditure forms the basis for future demand for inflation, and new programmes. In ZBB, a decision unit is broken down into decision packages, which are ranked on priority basis.

3. In traditional budgeting deliberate manipulation of budget proposals is possible. But In M, a rational analysis of budget proposals is made. Management approves only those carefully devised r6sult-oriented decisions packages.

4. In traditional budgeting, the top management takes decisions as regards the amount to be spent on a decision unit. But in ZBB this responsibility is shifted to the manager of a decision unit.

5. Traditional budgeting Makes a routine approach and is not clear and distinctive. ZBB makes each decision on budget proposal very distinctive and clear. It is a straight-forward approach and highlights priority projects distinctively.

Features of Zero-Base Budgeting

The essential features of Zero-Base Budget art as follows:

(a) The budget allotment to any decision unit should be first justified by the manager of that decision unit. He should justify his request without making reference, to previous level of spending in his decision unit.

(b) Activities are identified as decision-packages and then the latter are ranked in order of Priority.

(c) Decision-packages are evaluated by system analysis linking them with clearly laid down corporate objectives.

(d) A frank relationship exists between supervisors, and subordinates.

(e) Available resources are directed towards alternatives in order of priority to ensure optimum results.

Advantages of Zero-Base Budgeting

Zero-base budgeting has proved to be useful in many companies in the United States in improving management development, fostering innovations for better results and resolving problems in decision-making. As a tool of management planning and control-, Zero-base budgeting may be said to offer several advantages:

(t) It provides the organization with a systematic way to evaluate operations and programmes of activity, and allows management to allocate resour66s according to the priority of programmes.

(2) It ensures thorough examination of every function. Managers are, required to evaluate the need for every programme, and to consider different levels of effort and alternative ways of performing the operations.

(3) It enables departmental budgets to be approved on the basis of. Cost-benefit comparison rather than be open to any arbitrary cuts or increases in budget estimates.

(4) If decision-packages are ranked W order of priority, subsequent budgets cycles do not have to be based on a complete recycling of budget inputs.

(5) If available resources vary from 1he budgeted estimates during the but year, decision-packages can be reduced or expanded on the basis of priority ranking of the packages.

(6) Long-range goals and plans can be linked with the annual budgets through the zero-base budget. Not only does it facilitate quantification of costs and

benefits of contemplated decisions, it also enables managers to communicate problems and opportunities to the higher management.

(7) The performance of line managers can be judged against their commitments ilk terms of the approved decision-packages and their budgets.

Limitations of Zero-Base Budgeting

The limitations of (Zero-base budgeting, which arise largely due to certain operational problems, are as follows:

(a) Implementation problems. Successful implementation of zero-base budgeting may require wholehearted support from the top management, which may not readily available owing to fear and problems in the minds of top management. The concerned -managers should continue in the same decision units. If they are transferred frequently to other departments, it may lead to waste of time and resources in training and developing new managers.

(b) Formulation problems. Considerable problems may arise while formulating decision-packages. For example, problem may arise in the fixation of minimum level of effort. Managers may not like to fix the minimum level below the current levels. Similarly problems may arise in formulating meaningful performance evaluation measures.

(c) Ranking problems. Problems may arise in ranking of decision packages. Generally in managers may like to continue their favorite projects for the reasons best known to them. Ranking may also become difficult when there are a large number old decision-packages, particularly in a multi-product-manufacturing firm.

Management Reporting System

Management reporting system, in general, may be divided into three segments, namely, statutory reports, routine control & accounting reports and management control reports. Statutory reports include maintenance of statutory records and submission of reports and returns to various authorities as directed by law.

Routine control and accounting reports include routine stock records; sales records, ledgers, bank and cash position statements, expenses statements, etc., which are needed for general control and for accounting and auditing purpose.

Management Control Reports: Management plans and budgets the operations of each division, department or unit. Time-bound targets are set and the - management would like to ensure that the company's operations run as per the predetermined plan and targets set are met. The reports and the reporting system evolved to review that the company's operations are proceeding as per plans is known as management control reporting system. Hence for evolving appropriate management reporting system, it is necessary (i) to identify operations that need be reviewed, (ii) the path or the course of action planned and (iii) the time bound targets or budgets fixed.

Action Orientation: Since these reports are meant to review that the pre-set objectives are pursued and predetermined targets are achieved, these reports must incorporate (i) the action being taken to improve the performance and to overcome impediments if any and (ii) assistance required from corporate management. The reports must not be alibis for non-achievement.

Management by Exception: Management controls must be exercised where operations go or are likely to go haywire. It is therefore not essential to review everything but to review only those areas where performance is not as per plan. This principle is called "management by exception". Thus the system based on, management by exception" (i) deletes unnecessary information about operations that are running as per schedule and (ii) clearly points out operations of areas where action is needed.

Periodicity: The control reports must be submitted at interval where effective action can be taken. Too frequent reporting loses interest and enthusiasm of the recipients. Similarly, too infrequent reporting, when action cannot be taken, will be of academic interest only.

Timeliness: It is essential that the reports be submitted at a specified date Delays will make the reports ineffective and stale.

Accuracy: It must be understood that management control reports are not accounting documents and hence about 95 percent accuracy is good enough. Expense figures, for example, may be Oven in thousands or lakhs of rupees. For getting exact figures, precious time will be lost. Moreover, unnecessary lengthy figures will divert the attention from the subject.

Evolving Management Reporting System; Having reviewed the basic tenants of the management reporting system, let us see as to how to evolve and to establish the management reporting system

Organizational Structure: it is absolutely essential to know the organizational structure of a unit for which the MIS (management information system) is being evolved. The designations of the persons or positions, the responsibilities at each level and the reporting structure must be clearly understood. The management control information need at each level varies and hence the need to study the structure. At the highest management level overall review of divisional departmental operations will be sufficient, whereas at lower levels detailed information of each expense account, each product on customers may be required.

Studying Information Needs: Two methods are adopted for studying the information needs at each level of management,

Upside Down: Study critically the information needs at each level of management commensurate with the responsibilities. Find out and record all areas for which an executive will be accountable. The information system must cover all these areas and report to him the happenings and the progress in each area at regular intervals.

Down to Up: Each organisation evolves knowingly or unknowingly some reporting system to review its operation. Over a period, some reports are evolved. Record all these reports. Find out their frequency, information contents, source of information, usefulness of each piece of information, action taken after studying report, etc. many of the reports will be found totally useless. Discard these. You may change the frequency of submission or change their contents, etc. Such critical analysis will indicate and trim the reports to bear necessity.

Integrated Reporting System: It takes considerable efforts and time to prepare and submit reports and recipient has also to study each report. Hence it is advisable to reduce the number of reports to the bear necessity.

As we saw above, statutory reports and routine control and accounting reports are required to be made in addition to management control reports. He it is advisable to evolve an integrated reporting system, which can serve all the three objectives. Such a system will considerably reduce the number of reports, the

efforts gone in, to collect and to compile data to make reports and studying the reports by the recipients.

An Essential Control Tool: Good management control reporting system - M.I.S. - is extremely useful for controlling operations of any organisation. Executives are flooded with papers on day- to-day activities and unless a good reporting system to control the company's operations is evolved, a lot of paper work and unwanted operations pile up resulting in tensions, bickerings, late hours and inefficiency.

Nature and Contents of Management Control Reports

The reports are the vehicles of communication. The purpose of a control report is to communicate series of data related to the performance of specific responsibility centres, and their organizational heads. Fundamentally, they report actual results with desired performance and pinpoint both efficient and inefficient performance.

The following aspects of reporting for managerial control are of crucial importance for an effective and efficient management control system:

1. Frequency of reporting.
2. Format of control reports.
3. Contents and periodic review of management reports.

Frequency of Reporting: The frequency of submission of management report in terms of time would vary depending upon the importance and cruciality of the information communicated. For instance, daily or weekly information will usually be required on sales and production performance and weekly or monthly information on assets, liabilities, sales, profits and broad, categories of expenses and cost. Certain financial information like overhead expenses which are very susceptible to change or control once their broad levels have been determined, may even be reported every quarter. External environment data, which are of great use and relevance to corporate management, might be reported half yearly, since reporting at shorter intervals might not bring out the trend characteristics of such information.

Format of Control Reports: Format of a management report should be so designed that it highlights the actual achievement or performance in relation to original plan or budgets for respective items like output, sales, revenue, costs,

researches, receivables and other operational aspects of performance like yield, wastage, utilization, quality level achieved etc.

Contents of Management Report: A good reporting system lays emphasis on tailoring the contents of the reports according to the needs of the executives who used them. This tailoring should be carried down to the individual report rendered to each supervisor. The Supervisor of each department determines within the general framework, the extent of the detailed information he requires to control operations for which he is held accountable. Too much information in the management report for control purposes creates a problem of information indigestion and this ultimately delays control action. To combat information indigestion, there arises the need to design information suited for special use at all levels of management. All managers must choose points of information, which would assist them in exercising control over the department and employees therein, under their supervision. The nature of the information that needs to be supplied differs from one operating level to another. At the top level in all businesses the most important report is a condensation or summary of the essential operating and financial information to serve as a means of overall appraisal.

The requirements of operating management are rather different. The operating managers are more concerned with volume, quality and technical performance. They usually find such data useful, which provides them information about the targets achieved, however they also need information relating to costs incurred by them and the revenues generated by their operations. It is important to ensure that only those costs, which are controllable by the manager receiving the report and revenues generated by his operations, are included in the report.

From the above discussion the essentials of a good control report can be laid down as below

1. it is tailored to the organizational structure and controllability by responsibility center.

2. It is designed to draw attention of concerned manager towards deviation related to responsibility for judging performance and for adopting measures for correction and improvement.

3. It is repetitive and related to short time period.

4. It suits the requirements of its principal user.

5. It should be simple, understand further it should include only essential information.

6. The information contained in it should be lucidly presented either in written or graphic form or both.

7.To minimize gap between the decision point and performance reporting, it should be prepared and prepared Promptly.

8.It should not report only faults but embody constructive actions for improving the situation.

Analyzing Financial Performance Reports

Each marketing responsibility center within the unit. They can be further divided by sales area and sales district. Expense variances can be divided between manufacturing expenses and other expenses. Factories and departments within factories can further subdivide manufacturing expenses. Therefore, it is possible to identify each variance with the individual manager who is responsible for it. This type of analysis is a powerful tool, without which the efficacy of profit budgets would be limited.

The profit budget has embedded in it certain expectations about the state of the total industry and about the company's market share, its selling prices, and its cost structure. Results from variance computations are more "actionable" if changes in actual results are analyzed against each of these expectations. The analytical framework we use to conduct variance analysis incorporates the following ideas:

- Identify the key causal factors that affect profits.
- Break down the overall profit variances by these key causal factors.
- Focus on the profit impact of variation in each causal factor.
- Try to calculate the specific, separable impact of each causal factor by varying only that factor while holding all other factors constant ("spinning only one dial at a time").
- Add complexity sequentially, one layer at a time, beginning at a very basic "commonsense" level ("Peel the onion").

Revenue Variances

In this section, we describe how to calculate selling price, volume, and mix variances. The calculation is made for each product line, and the product line results are then aggregated to calculate the total variance. A positive variance is favorable, because it indicates that actual profit exceeded budgeted profit, and a negative variance is unfavorable.

Selling Price Variance. The selling price variance is calculated by multiplying the difference between the actual price and the standard price by the actual volume.

Mix and Volume Variance. Often the mix and volume variances are not separated. The equation for the combined mix and volume variance is:

Mix and volume variance = (Actual volume - Budgeted volume) * Budgeted unit contribution

Mix Variance. The mix variance for each product is found from the following equation:

Mix variance = [(Total actual volume of sales * Budgeted proportion)

- (Actual volume of sales)] * Budgeted unit contribution

Volume variance

Volume variance = [(Total actual volume of sales) * (Budgeted percentage)] - Budgeted sale) * (Budgeted unit contribution))

Market Penetration and Industry Volume. One extension of revenue analysis is to separate the mix and volume variance into the amount caused by differences in market share and the amount caused by differences in industry volume. The principle is that the business unit managers are responsible for market share, but they are not responsible for the industry volume because that is largely influenced by the state of the economy.

The following equation is used to separate the effect of market penetration from industry volume on the mix and volume variance:

Market share variance = [(Actual sales) - (Industry volume)]

• Budgeted market penetration

• Budgeted unit contribution

The market share variance is found for each product separately, and the total variance is the algebraic sum.

The industry volume variance can also be calculated for each product as follows:

Industry volume variance = (Actual industry volume - Budgeted industry volume) * Budgeted market penetration * Budgeted unit contribution

Expense Variances

Fixed Costs. Variances between actual and budgeted fixed costs are obtained simply by subtraction, since either the volume of sales or the volume of production does not affect these costs.

Variable Costs. Variable costs are costs that vary directly and proportionately with volume. The budgeted variable manufacturing costs must be adjusted to the actual volume of production.

Summary of Variances

There are several ways in which the variances can be summarized in a report for management.

Variations in Practice

Time Period of the Comparison

The company compared January's budget with January's actuals. Some companies use performance for the year to date as the basis for comparison; for the period ended June 30, they would use budgeted and actual amounts for the six months ending on June 30, rather than the amounts for June. Other companies compare the budget for the whole year with the current estimate of actual performance for the year. The actual amounts for the report prepared as of June 30 would consist of actual numbers for the first six months plus the best current estimate of revenues and expenses for the second six months.

A comparison for the year to date is not as much influenced by temporary aberrations that may be peculiar to the current month and, therefore, that need not be of as much concern to management. On the other hand, it may mask the emergence of an important factor that is not temporary.

A comparison of the annual budget with current expectation of actual performance for the whole year shows how closely the business unit manager expects to meet the annual profit target. If performance for the year to date is

worse than the budget for the year to date, it is possible that the deficit will be overcome in the remaining months. On the other hand, forces that caused actual performance to be below budget for the year to date may be expected to continue for the remainder of the year, which will make the final numbers significantly different from the budgeted amounts. Senior management needs a realistic estimate of the profit for the whole year, both because it may suggest the need to change the dividend policy, to obtain additional cash, or to change levels of discretionary spending, and also because a current estimate of the year's performance is often provided to financial analysts and other outside parties.

Obtaining a realistic estimate is difficult. Business unit managers tend to be optimistic about their ability to perform in the remaining months because, if they are pessimistic, this casts doubt on their ability to manage. To some extent, this tendency can be overcome by placing the burden of proof on business unit managers to show that the current trends in volume, margins, and costs are not going to continue. Nevertheless, an estimate of the whole year is soft, whereas actual performance is a matter of record. An alternative that lessens this problem is to report performance both for the year to date and for the year as a whole.

Focus on Gross Margin

We assume that selling prices were budgeted to remain constant throughout the year. In many companies, changes in costs or other factors are expected to lead to changes in selling prices, and the task of the marketing manager is to obtain a budgeted gross margin-that is, a constant spread between costs and selling prices. Such a policy is especially important in periods of inflation. A variance analysis in such a system would not have a selling price variance. Instead, there would be a gross margin variance. Unit gross margin is the difference between selling prices and manufacturing costs.

The variance analysis is done by substituting "gross margin" for "selling price" in the revenue equations. Gross margin is the difference between actual selling prices and the standard manufacturing cost. The current standard manufacturing cost should take into account changes in manufacturing costs that are caused by changes in wage rates and in material prices (and, in some companies, significant changes in other input factors, such as electricity in aluminum manufacturing). The standard, rather than the actual, cost is used so that manufacturing inefficiencies do not affect the performance of the marketing organization.

Evaluation Standards- In management control systems, the formal standards used in the evaluation of reports on actual activities are of three types: (1) predetermined standards or budgets, (2) historical standards, or (3) external standards.

Predetermined Standards or Budgets. If carefully prepared and coordinated, these are excellent standards. They are the basis against which actual performance is compared in many companies. If the budget numbers are collected in a haphazard manner, they obviously will not provide a reliable basis for comparison.

Historical Standards. These are records of past actual performance. Results for the current month may be compared with the results for last month, or with results for the same month a year ago. This type of standard has two serious weaknesses: (1) conditions may have changed between the two periods in a way that invalidates the comparison, and (2) the prior period's performance may not have been acceptable. A supervisor whose spoilage cost is $500 a month, month after month, is consistent; but we do not know, without other evidence, whether the performance was consistently good or consistently poor. Despite these inherent weaknesses, historical standards are used in some companies, often because valid predetermined standards are not available.

External Standards. These are standards derived from the performance of other responsibility centers or of other companies in the same industry. The performance of one branch sales office may be compared with the performance of other branch sales offices. If conditions in these responsibility centers are similar, such a comparison may provide an acceptable basis for evaluating performance.

Some companies identify the company that they believe to be the best managed in the industry and use numbers from that company-either with the cooperation of that company or from published material-as a basis of comparison. This process is called benchmarking.

Many companies publish their financial statements on the Internet. A problem with using this information as a basis for comparison with competitors' performance is that the names for account titles are not the same. The American Institute of CPAs has a project that seeks to establish a standard set of account titles used in Internet reports. This is named the XBRL project. When these titles become accepted, it should be easy to obtain averages and other data for

competitors by a simple computer program. Current information about this project can be obtained from the AICPA Web site www.oasis.open.org/cover/siteindex.html. The Financial Executives Institute provides information about performance of member companies, but most is available only to subscribers of its project. Tidbits are published in its journal, Financial Executive.

Limitations on Standards. A variance between actual and standard performance is meaningful only if it is derived from a valid standard. Although it is convenient to refer to favorable and unfavorable variances, these words imply that the standard is a reliable measure of what performance should have been. Even a standard cost may not be an accurate estimate of what costs should have been under the circumstances. This situation can arise for either or both of two reasons: (1) the standard was not set properly; or (2) although it was set properly in light of conditions existing at the time, changed conditions have made the standard obsolete. An essential first step in the analysis of a variance is an examination of the validity of the standard.

Full-Cost Systems

If the company has a full-cost system, both variable and fixed overhead costs are included in the inventory at the standard cost per unit. If the ending inventory is higher than the beginning inventory, some of the fixed overhead costs incurred in the period remain in inventory rather than flowing through to cost of sales. Conversely, if the inventory balance decreased during the period, more fixed overhead costs were released to cost of sales than the amount actually incurred in the period. Our example assumed that the inventory level did not change. Thus, the problem of treating the variance associated with fixed overhead costs did not arise.

If inventory levels change, and if actual production volume is different from budgeted sales volume, part of the production volume variance is included in inventory. Nevertheless, the full amount of the production volume variance should be calculated and reported. This variance is the difference between budgeted fixed production costs at the actual volume (as stated in the flexible budget) and standard fixed production costs at that volume.

If the company has a variable-cost system, fixed production costs are not included in inventory, so there is no production volume variance. The fixed

production expense variance is simply the difference between the budgeted amount and the actual amount.

The important point is that production variances should be associated with production volume, not sales volume.

Amount of Detail

In the example, we analyzed revenue variances at several levels: first, in total; then by volume, mix, and price; then by analyzing the volume and mix variance by industry volume and market share. At each of these levels, we analyzed the variances by individual products. The process of going from one level to another is often referred to as "peeling the onion''-that is, successive layers are peeled off, and the process continues as long as the additional detail is judged to be worthwhile. Some companies do not develop as many layers as shown in our example; others develop more. It is possible, and in some cases worthwhile, to develop additional sales and marketing variances, such as the following: by sales territories, and even by individual salesperson; by sales to individual countries or regions; by sales to key customers, principal types of customers, or customers in certain industries; by sales originating from direct mail, from customer calls, or from other sources. Additional detail for manufacturing costs can be developed by calculating variances for lower level responsibility centers and by identifying variances with specific input factors, such as wage rates and material prices.

These layers correspond to the hierarchy of responsibility centers. Taking action based on the reported variances is not possible unless they can be associated with the managers responsible for them.

With modem information technology, about any level of detail can be supplied quickly and at reasonable cost. The problem is to decide how much is worthwhile. In part, the answer depends on the information requested by individual managers-some are numbers-oriented, others are not. In the ideal situation, the basic data exist to make any conceivable type of analysis, but only a small fraction of these data are reported routinely.

Engineered and Discretionary Costs

Variances in engineered costs are viewed in a fundamentally different way from variances in discretionary costs.

A "favorable" variance in engineered costs is usually an indication of good performance; that is, the lower the cost the better the performance. This is subject to the qualification that quality and on-time delivery are judged to be satisfactory.

By contrast, the performance of a discretionary expense center is usually judged to be satisfactory if actual expenses are about equal to the budgeted amount, neither higher nor lower. This is because a favorable variance may indicate that the responsibility center did not perform adequately the functions that it had agreed to perform. Because some elements in a discretionary expense center are in fact engineered (e.g., the bookkeeping functions in the controller organization), a favorable variance is usually truly favorable for these elements.

Limitations although variance analysis is a powerful tool, it does have limitations. The Variance most important limitation is that although it identifies where a variance occurs, it does not tell why the variance occurred or what is being done about it. For example, the report may show there was a significant unfavorable variance in marketing expenses, and it may identify this variance with high sales promotion expenses. It does not, however, explain why the sales promotion expenses were high and what, if any, actions were being taken. A narrative explanation, accompanying the performance report, should provide such an explanation. A second problem in variance analysis is to decide whether a variance is significant. Statistical techniques can be used to determine whether there is a significant difference between actual and standard performance for certain processes; these techniques are usually referred to as statistical quality control. However, they are applicable only when the process is repeated at frequent intervals, such as the operation of a machine tool on a production line. The literature contains a few articles suggesting that statistical quality control be used to determine whether a budget variance is significant; but this suggestion has little practical relèvance at the business unit level because the necessary number of repetitive actions is not- present. Conceptually, a variance should be investigated only when the benefit expected from correcting the problem exceeds the cost of the investigation; but a model based on this premise has so many uncertainties that it is only of academic interest. Managers, therefore, rely on judgment in deciding what variances are significant.

Moreover, if a variance is significant but is uncontrollable (such as unexpected inflation), there may be no point in investigating it. A third limitation of variance

analysis is that as the performance reports become more highly aggregated, offsetting variances might mislead the reader. For example, a manager looking at business unit manufacturing cost performance might notice that it was on budget. However, this might have resulted from good performance at one plant being offset by poor performance at another. Similarly, when different product lines at different stages of development are combined, the combination may obscure the actual results of each product line. Also, as variances become more highly aggregated, managers become more dependent on the accompanying explanations and forecasts. Plant managers know what is happening in their plant and can easily explain causes of variances. Business unit managers and everyone above them, however, usually must depend on the explanations that accompany the variance report of the plant. Finally, the reports show only what has happened. They do not show the future effects of actions that the manager has taken. For example, reducing the amount spent for employee training increases current profitability, but it may have adverse consequences in the future. Also, the report shows only those events that are recorded in the accounts, and many important events

PERFORMANCE MEASUREMENT

The objective of performance measurement systems is to help implement strategy, interactive control-the use of a subset of management control information in developing new strategies.

The goal of performance measurement systems is to implement strategy. In setting up such systems, senior management selects measures that best represent the company's strategy. These measures can be seen as current and future critical success factors; if they are improved, the company has implemented its strategy. The strategy's success depends on its soundness. A performance measurement system is simply a mechanism that improves the likelihood the organization will implement its strategy successfully. Strategy defines the critical success factors; if those factors are measured and rewarded, people are motivated to achieve them.

Limitations of Financial Control Systems

An important goal of a business enterprise is to optimize shareholder returns. However, optimizing short-term profitability does not necessarily ensure optimum shareholder returns since shareholder value represents the net present value of expected future earnings. At the same time, the need for ongoing

feedback and management control requires companies to measure and evaluate business unit performance at least once a year.

First, it may encourage short-term actions that are not in the company's long-term interests. The more pressure that is applied to meet current profit levels, the more likely the business unit manager will be to take short-term actions that may be wrong in the long run. To illustrate, the manager may deliver inferior-quality products to customers to meet sales targets, and this will adversely affect customer goodwill and future sales. These are errors of commission.

Example. Some divisional presidents in Bausch & Lomb, under pressure to produce bottom-line results, began using tactics that were costly for the company in the long term but which maximized their short-term bonuses. One favorite tactic was extending unusually long credit terms to customers in exchange for big orders.

Second, business unit managers may not undertake useful long-term actions, in order to obtain short-term profits. For instance, managers may not make investments that promise long-term benefits because they hurt short-term financial results. A common example is managers investing inadequate dollars in research and development; R&D investments must be expensed in the year in which they are incurred but their benefits show up only in the future. Again, managers may not propose risky investments-investments about whose future cash flows there is a great deal of uncertainty-because cash flow uncertainty reduces the probability of meeting short-term financial targets. In other words, managers may propose "safe" investments (which are quite likely to produce adequate future cash flows) instead of high-risk projects that may produce high returns. These are errors of omission.

Third, using short-term profit as the sole objective can distort communication between a business unit manager and senior management. If business unit managers are evaluated based on their profit budget, they may try to set profit targets they can easily meet, leading to erroneous planning data for the whole company because the budgeted profit may be lower than the amount that could really be achieved. Also, business unit managers may be reluctant to admit during the year that they are likely to miss their profit budget until it is evident that they cannot possibly attain it. This delays corrective action.

Fourth, tight financial control may motivate managers to manipulate data. This can take several forms. At one level, managers may choose accounting methods

that borrow from future earnings to meet current period targets (e.g., by making inadequate provision for bad debts, inventory shrinkage, and warranty claims). At another level, managers may falsify data-that is, deliberately provide inaccurate information.

In sum, relying on financial measures alone is insufficient to ensure strategy will be executed successfully. The solution is to measure and evaluate business unit managers using multiple measures, nonfinancial as well as financial. We refer to nonfinancial measures that support strategy implementation as key success factors or key performance indicators.

Companies used financial and nonfinancial measures in the past. However, they tended to use nonfinancial measures at lower levels in the organization for task control and financial measures at higher organizational levels for management control. A blend of financial and nonfinancial measurements is, in fact, needed at all levels in the organization. It is important for senior executives to track not only financial measures, which indicate-the -results of past decisions, but also nonfinancial measures, which are leading indicators of future performance. Similarly, employees at lower levels need to understand the financial impact of their operating decisions.

General Considerations

Comparing performance measurement systems to an instrument panel on ε dashboard provides important insights about the mix of financial and nonfinancial measures needed in a management control system: A sin measure cannot control a complex system; and too many critical means make the system uncontrollably complex. Expanding the analogy will this.

The Balanced Scorecard

The balanced scorecard is an example of a performance measurement system. According to proponents of this approach, business units should be assigned goals and then measured from the following four perspectives:

- Financial (e.g., profit margins, return on assets, cash flow).
- Customer (e.g., market share, customer satisfaction index).
- Internal business (e.g., employee retention, cycle time reduction).
- Innovation and learning (e.g., percentage of sales from new products).

The balanced scorecard fosters a balance among different strategic measures in an effort to achieve goal congruence, thus encouraging employees to act in the organization's best interest. It is a tool that helps the company's focus, improves communication, sets organizational objectives, and provides feedback on strategy.

Every measure on a balanced scorecard addresses an aspect of a company's strategy. In creating the balanced scorecard, executives must choose a mix of measurements that (1) accurately reflect the critical factors that will determine the success of the company's strategy; (2) show the relationships among the individual measures in a cause-and-effect manner, indicating how nonfinancial measures affect long-term financial results; and (3) provide a broad-based view of the current status of the company.

Performance measurement systems have been discussed in this and other texts for many years. The balanced scorecard is an example of "old wine in a new bottle." The ideas are essentially the same as performance measurement systems but are repackaged under a new label.

Performance Measurement Systems: Additional Considerations

A performance measurement system attempts to address the needs of the different stakeholders of the organization by creating a blend of strategic measures: outcome and driver measures, financial and nonfinancial measures, and internal and external measures.

Outcome and Driver Measures. Outcome measurements indicate the result of a strategy (e.g., increased revenue). These measures typically are "lagging indicators"; they tell management what has happened. By contrast, driver measures are "leading indicators"; they show the progress of key areas in implementing a strategy. Cycle time is an example of a driver. Whereas outcome measures indicate only the final result, driver measures can be used at a lower level and indicate incremental changes that will ultimately affect the outcome,

By focusing management attention on key aspects of the business, driver measures affect behavior in the organization. If a business unit's desire is to improve time-to-market, focusing on cycle time allows management to track how well this goal is being achieved, which, in turn, encourages employees to improve this particular measure.

Outcome and driver measures are inextricably linked. If outcome measures indicate there is a problem but the driver measures indicate the strategy is being implemented well, there is a high chance that the strategy needs to be changed.

Financial and Nonfinancial Measures. Organizations have developed very sophisticated systems to measure financial performance.

Even though they recognize the importance of nonfinancial measure many organizations have failed to incorporate them into their executive-level performance reviews because these measures tend to be much less sophisticated than financial measures and senior management is less adept at using them.

Internal and External Measures. Companies must strike a balance between external measures, such as customer satisfaction, and measures of internal business processes, such as manufacturing yields. Too often companies sacrifice internal development for external results or ignore external results altogether, mistakenly believing that good internal measures are sufficient.

Measurements Drive Change. The most important aspect of the performance measurement system is its ability to measure outcomes and drivers in a way that causes the organization to act in accordance with its strategies. The organization achieves goal congruence by linking overall financial and strategic objectives with lower-level objectives that can be observed and affected at different organizational levels. With these measures, all employees can understand how their actions impact the company's strategies.

Because these measures are explicitly tied to an organization's strategies, the measures in the scorecard must be strategy-specific and therefore organization-specific. While a generic performance measurement framework exists, there is no such thing as a generic scorecard.

The scorecard measures are linked from top to bottom and tied to specific targets throughout the entire organization. Objectives can further clarify a strategy so that the organization knows both what it needs to do and how much must be done.

Finally, the scorecard emphasizes the idea of cause-and-effect relationships among measures. By explicitly presenting the cause-and-effect relationship, an organization will understand how nonfinancial measures (e.g., product quality) drive financial measures (e.g., revenue).

Key Success Factors

Here we discuss several nonfinancial measures, also referred to as key success factors. We emphasize that fewer key variables are selected for a given business unit than the number of items discussed below.

Customer-Focused Key Variables. The following key variables focus on the customer:

-- Bookings. In most business units, some aspect of sales volume is a key variable. Ideally, this is a sale order booked, since unexpected changes in this variable can have future repercussions throughout the business. Because bookings precede sales revenue, this is a better indicator than sales revenue itself. A decrease in this variable signal that adjustments to marketing activities may be warranted-in the hope of increasing sales or production activities or both-to changes operating levels. There are many variations in this general idea. In magazine publishing, for example, the percentage of expiring subscriptions that renew is a key variable; a decrease indicates something is wrong with promotional efforts or the contents of the magazine. In restaurants, it the number of meals served adjusted for the day of the week, season of the year, the weather, and possibly other factors.

* Back orders. An indication of an imbalance between sales and production, back orders can suggest customer dissatisfaction.

* Market share. Unless the market share is watched closely, a deterioration in the unit's competitive position can be obscured by reported increases in sales volume that result from overall industry growth.

* Key account orders. In business units that sell to retailers, the orders received fF6m certain important accounts-large department stores, discount chains, supermarkets, mail-order houses-may indicate early the entire marketing strategy's success.

* Customer satisfaction. This can be measured by customer surveys, " mystery shopper" approaches, and number of complaint letters.

* Customer retention. The lengths of customer relationships can measure this.

* Customer loyalty. This can be measured in terms of repeat purchases, customer referrals, and sales to the customer as a percentage of the customer's total requirements for the same product or service.

Key Variables Related to Internal Business Processes. The following key variables relate to internal business processes:

• Capacity utilization. Capacity utilization rates are especially important in businesses in which fixed costs are high (e.g., paper, steel, aluminum manufacture). Similarly, in a professional organization, the percentage of the total available professional hours that is billed to clients-sold time-is a measure of fixed-resource utilization. In a hotel, the percentage of rooms occupied each day-occupancy rate-is the capacity utilization measure.

• On-time delivery.

• Inventory turnover.

• Quality. Indicators of quality include the number of defective units delivered by each supplier, number and frequency of late deliveries, number of parts in a product, percentage of common versus unique parts in a product, percentage yields, first-pass yields (i.e., percentage of units furnished without rework), scrap, rework, machine breakdowns, number and frequency of times production and delivery schedules were not met, number of employee suggestions, number of customer complaints, level of customer satisfaction, warranty claims, field service expenses, number and frequency of product returns, and so on.

Cycle time. This equation for cycle time is a tool used to analyze inventory requirements:

Cycle time = Processing time + Storage time + Movement time + Inspection time

Only the first element, processing time, adds value to the product. The other three elements do nothing to make the product more valuable. The analysis, therefore, attempts to identify all activities that do not directly add value to the product and to eliminate, or reduce the cost of, these activities. For example, transporting in-process work from one workstation to another does not add value, so an effort is made to rearrange the location of workstations to minimize transportation costs.

A just-in-time system focuses management attention on time in addition to the traditional focus on cost. Reducing cycle time can lead to a reduction in cost. One of the effective ways to monitor progress on just-in-time is to compute the following ratio:

$$\frac{\text{Process time}}{\text{Cycle time}}$$

Ideally, the goal for this ratio should be equal to 1, but it cannot be achieved overnight. The just-in-time system is not a turnkey installation; rather, it is an evolutionary system that seeks to continually improve the manufacturing process. The firm can establish targets for this ratio, monitoring progress against the targets. Best results can be obtained by emphasizing continuous improvements in this ratio toward the ideal number. Implementing a Performance Measurement System

Implementation of a performance measurement system involves four general steps:

1. Define strategy.

2. Define measures of strategy.

3. Integrate measures into the management system.

4. Review measures and results frequently.

Each of these steps is iterative, requiring the participation of senior executives and employees throughout the organization. Though the control] may be responsible for overseeing its development, it is a task for the en management team.

Define Strategy. The scorecard builds a link between strategies and operational action. Therefore, the process of defining a scorecard begins by define the organization's strategy. In this phase, it is important that the organization's goals are explicit and that targets have been developed.

Define Measures of Strategy. The next step is to develop measures to support the articulated strategy. The organization must focus on a few critical measures at this point or management will be overloaded with measures (too many gauges on the "dashboard," to recall our analogy). Also, it is important that the individual measures be linked with each other in a cause-effect manner.

Integrate Measures into the Management System. The scorecard must be integrated with the organization's formal and informal structures, culture, and human resource practices. For instance, the effectiveness of the scorecard will be compromised if managers' compensation is based only on financial performance.

Review Measures and Results Frequently. Once the scorecard is up and running, it must be consistently and continually reviewed by senior management. The organization should look for the following:

* How is the organization doing according to the outcome measures?

* How is the organization doing according to the driver measures?

* How has the organization's strategy changed since the last review?

* How have the scorecard measures changed?

The most important aspects of these reviews are as follows:

* They tell management whether the strategy is being implemented correctly and how successfully it is working.

* They show that management is serious about the importance of these measures.

* They keep measures aligned to ever-changing strategies.

* They improve measurement.

These review sessions complete the four steps and provide the impetus to start the cycle again.

Difficulties in Implementing Performance Measurement Systems

Unless the following problems are suitably dealt with, they could limit the usefulness of the performance measurement system.

Poor Correlation between Nonfinancial Measures and Results. Simply put, there is no guarantee that future profitability will follow target achievements in any nonfinancial area. This is a serious problem since there is an inherent assumption that future profitability does follow from achieving individual measures. Identifying the cause-effect relationships among the different measures is easier said than done.

This is a problem when we try to develop proxy measures for future performance. While it does not mean that systems with several measures should be abandoned, it is important for companies to understand that the links between nonfinancial measures and financial performance are not well understood.

Fixation on Financial Results. As previously discussed, not only are most senior managers well trained and adept with financial measures, they also keenly

feel pressure regarding the financial performance of their companies. Shareholders are vocal, and boards of directors frequently apply pressure on the shareholders' behalf. This pressure may overwhelm the long term, uncertain payback of the nonfinancial measures.

Poorly designed incentive programs create additional pressure. Senior managers most often are compensated for financial performance. This can disrupt goal congruence, causing managers to be more concerned about financial measures than any other measure. Even companies that have tied rewards to multiple measures may have a disproportionate bias toward financial performance.

Example. Cigna Insurance Company's Property and Casualty Division tied its scorecard to bonuses. Of the four categories in the scorecard, financials had the largest impact, counting for a full one-half of the bonus.

Measures Are Not Updated. Many companies do not have a formal mechanism for updating the measures to align with changes in strategy. As a result, the companies continue to use measures based on yesterday's strategy. Additionally, measures often build up inertia, particularly as people get comfortable using them.

Measurement Overload. How many critical measures can one manager track at one time without losing focus? There is no right answer to this question, except to say that it is more than one and less than fifty! If the number is too few, the manager is ignoring measures that are critical to monitoring strategy execution. If there are too many measures, the manager may risk losing focus in trying to do too many things at once.

Difficulty in Establishing Trade-Offs. Some companies combine financial and nonfinancial measures into a single report and give weights to the individual measures. But most scorecards do not assign explicit weights across measures. Without such weights, it becomes difficult to establish trade-offs between financial and nonfinancial measures.

Measurement Practices

The results of the Lingle and Schiemann study provide insights into what companies are actually measuring, the perceived quality these measures, and which measures are being linked to compensation.

Types of Measures. The Lingle and Schiemann study found that 76 percent of the responding companies included financial, operating, and customer satisfaction measures in regular management reviews, but only 33 percent indicated they included innovation and change measures in regular management reviews.

Quality of Measures. The financial performance measures were the only measures that were considered to be high quality, current, and tied to compensation. Most responding companies had operating and customer satisfaction measures, and over 79 percent of the companies considered this information to be highly valuable. Unfortunately, there was often a large difference between the perceived value of these measures and the quality of information they produced.

Relationship of Measures to Compensation. Most management systems link financial measures to compensation.

REVIEW QUESTIONS

1) Define 'Responsibility Accounting.
2) Define the term -Responsibility Unit.
3) Distinguish between Cost Centre and Expense Center.
4) What do you understand by Investment Centre?
5) What is a Profit Centre? State the prerequisites for the successful implementation of the profit centre system.
6) Explain the mechanics of setting up Profit Centre Control.
7) What are the advantages of Responsibility Accounting?
8) What do you mean by transfer pricing?
9) Describe the various methods of transfer pricing.
10) Highlight the significance of performance measurement.

Unit - 5

M.I.S. for Management Control - Systems theory and management control - Installation of management information and control system Structured and unstructured decision - Implication for control.

Management Information System (MIS)

* Meaning of MIS
* Ro1e of MIS
* Information Needs of Management Designing an MIS
* Problems in Installation of MIS Guidelines for making MIS Effective
* Types of Information Systems
* Computers and MIS

In order to perform the control function effectively, managers need information. Only with accurate and timely information can managers, monitor progress toward their goals and turn plans into reality. Without the right type of information, managers cannot stay on track or anticipate potential problems or decide corrective actions. However, information is useful only when it is relevant, accurate, timely and of right quantity. In order to provide such information to managers, a formal system for the collection, processing, storage and retrieval of data is required.

Meaning of MIS

MIS is a formal system for providing management with accurate and timely information necessary for decision-making. The system provides information on the past, present and projected future and on relevant events inside and outside the organization. It may be defined as a formalized and structured system for providing information to managers on a regular basis to assist them in their functions of planning and control. MIS is a planned and integrated system-for gathering relevant data, converting it int6 the right information and supplying the same to the concerned executives. The basic objective of M IS is to provide the right information to the right people, at the right time.

An MIS may be described as an input-process-output system. Inputs of an MIS are the data collected from various sources inside and outside the organization. Input element of MIS collects data from the organization and its environment. Processes refer to the conversion of data into relevant information and storage of the information. Storage element maintains a database in the form of historical records, forecasts, plans, and standards, decision rules, models, etc. Outputs imply the information supplied to managers. A variety of information is provided to support the decision-making activities of management.

Role of MIS

An MIS contributes towards effective management in the following ways;

1. Facilitates planning
2. Reduces information overload
3. Improves Decentralization
4. Assists coordination
5. Simplifies control

Designing An MIS

Murdick has suggested the following steps in designing a computer-based MIS,

1. A Preliminary survey and problem definition stage First of all, a thorough assessment of the organization's strategic goals and capabilities is made. The external factors relevant to the organization's functions are also assessed. It is necessary to analyze the decisions for which information is required. The needs of every level and functional area must be considered. Form this analysis and assessment the information system needed by the organization can be defined.

2. A conceptual design stage. An analysis of the current information system is made to determine alternative information system designs with specific performance requirements. These alternatives are then evaluated against the organization's objectives, capabilities Add information needs. An initial MIS design is selected. At this stage, tasks are delegated, information on the design is communicated to employees, and the, plan for a training programme is conceived.

3. A detailed design stage. Once the conceptual plan is formulated, performance specifications of the new MIS can be developed. This is the stage when the actual system for collecting, storing, transmitting and retrieving information is developed. Components, programming, flow-charting and databases are designed. A model of the system is created, tested, refined and reviewed until it meets the specific level of performance.

4. A final implementation stage. The formal requirements for the system are determined. The logistics of space allocations, equipment additions and forms designs are worked out and enacted, the training programme is launched, Design and testing of software for the MIS are completed. The organization's databases are entered into the-system. After a series of final checks, the MIS is ready for implementation.

In addition to the above stages, it is necessary to periodically review the system. Once the system is implemented, deficiencies may arise-and the system may have to be adapted to the -changing needs and environment of the organization. It is, therefore, necessary to build and implement control procedures that can detect and remove deficiencies in the system.

Guidelines for Making MIS Effective

The following measures will help in making an MIS successful:

1. User Orientation. The MIS must be user oriented in both design and implementation. If the system's output fails to meet the users need, MIS will not be successful. MIS design staff should be rewarded for fulfilling user needs as well as for meeting project deadlines.

2. Participation. The design and implementation of MIS should not be left entirely to technical experts or specialists. Users (operating managers) should be included in the design teams. Users know who; Information is needed, when It is needed and how it will be used. Unless operating managers have a decisive voice in the design of the MIS, the information system may fail to proceed needed information while simultaneously over-loading them with useless information. Co-operation between the operating managers and system designers is necessary. Therefore operating managers, -should have a major say in the items to be included, the disposition of information, and possible job modifications.

3. Communication. The aims and characteristics of the MIS should be closely designed and communicated to all members of the design team as well as to

users. This task is very difficult because the character of an MIS evolves as it was designed and implemented. However, without clear understandings of the system's basic objectives and characteristics, team members and users will have constant differences of opinion.

4. Proper Staffing. An MIS cannot be successful if this staff involved in it is not competent and dedicated. Proper education, training and orientation of-MIS staff is, therefore, essential. A training programme for managers and MIS operators is important for two reasons, without training and written instruction for the operation and use of the MIS, the organization will be at a loss when experienced personnel leave. Moreover, operators must understand the information needs of managers at different levels. Similarly managers need to understand how the MIS operates so that they can I control it rather than letting it control them.

5. Cost Benefit Analysis. In. order to keep the 'MIS -On track and on budget, Designers need to specify how the system will be developed. These includes schedules of time required for different steps, milestones to be reached and budgeted costs. If managers justify the design and installation of a new system on a cost-benefit basis, cost overruns are less likely to occur. Using available software, wherever possible, rather than developing inhouse software can reduce cost of an MIS. Stressing can also check costs, relevance and selectivity instead of share quantity. What managers need is relevant information rather than maximum Information.

6. Motivation. A new MIS may modify a manager's job to the point where old methods of performance evaluation no longer apply. Therefore, an MIS that calls for new evaluation procedures needs to be supplemented with both high performance and acceptance of the system. The new methods must be clearly explained so that managers will know how their accomplishments will be measured and rewarded.

7. Pre testing. In spite of co-operation between managers and system designers important, factors may be overlooked. It is, therefore, necessary to pretest the system before installation. Omissions and problems will show up during the test period. The system should be implemented segment by segment. Such phased installation allows, operational testing and problem solution.

8. Reviews and Revision. Even with great care-in design and installation, an MIS may not fit the needs of users as closely as desired, either because it is

difficult to use or; because it, doesn't supply all the, required information. Therefore, the system should be critically reviewed from time to time. Such review may reveal certain deficiencies of the system in a changing environment to remove the deficiencies and to keep the system up to date.

9. Security. Write, designing and implementing a, control system, the issue of security must be considered. In order to ensure security the equipment may be placed in safe and supervised areas and- by constructing password and read-only riles. While the protection of mainframe configurations is usually is adequate, security for microcomputer systems is lacking in many organizations. Such organizations tend to be ignorant of the risks involved and often neglect appropriate security measures.

Types of Information Systems

There are several types of information systems, each with unique characteristics and, each designed for specific uses. These are described below:

1. Transactions Processing Systems (TPS). These systems evolved as natural extensions of accounting activities and deal write an, organization's daily transactions. Computers are used to record, sort, and process data. This process, are also called electronic data processing systems (EDP). These are useful for repetitive data and simple calculations. For example, a computerized payroll system allows rapid collection of labor hours, accurate calculation of customer billings and automatic preparation of payroll cheques.

Transactions processing systems are now well established. They are distinct from other information systems, as they are not specifically used to assist managers with decisions. They simply streamline data efficiently providing accurate and timely transactions. Their results are oriented towards efficient transactions not decision-making reports.

2. Office Automation Systems (OAS). These systems comprise information technologies designed to improving office Productivity. Their main purpose is to reduce the clerical burden of office administration. Office information technology comprise of computerized word processing, electronic mail networks, telecommunications equipment, electronic file

3.Design Support System

4. Client/Server System (C/SS). A client /server system is a network that allows distributed computing among network users yet retains full access to central mainframe file server. It is an. extension of network and distributed computing concepts. However, a C/SS goes, much further than sharing access between a central file server and distributed workstations. A true C/SS allows applications to move off the mainframe so that software and data are not merely shared but actually decentralized. A C/SS, by definition, allows any person with a work station to communicate with any other person with a work station.. There, are two server constraints on implementing a C46S in its pure form. FW4 the-technology exists but is limited to hard-wired systems; Secondly, allowing applications to move off the file server threatens software and data security. Nevertheless, many companies are implementing CISS with methods to maintain security.

5. Expert Systems (ES). These software programmes mimic the human thought process by using models of expert decisions and the extensive knowledge stored in their databases. Although ES programmes are till in their infancy, breakthrough programming have already created operating systems that perform analysis and monitoring activities. The heart of an ES is its ability to pose 'if-then' questions and computer generated solutions. For example American Express Banking Corporation uses ES to automatically analyze credit applications and to monitor customer 'credit card spending limits.

The main constraint of expert systems is that 'it then' scenarios are limited to information put into the system by human beings. Computers still do not think, they only process information. Expert systems are, however, able to access huge amounts of data and hundred of separate databases, with extra-ordinary speed to create new amalgamations of information. These new configurations of information are self-generated, and this unusual feature of ES is "at differentiated from other systems.

Computers and MIS

A computer is an electronic machine, which can accept data, perform desired operations on the data, store the data until required and report the same at extremely high speed. The main components of a computer are as follows:

(i) INPUT. This part of computer receives data.

(ii) MEMORY. This unit retains the input, intermediate calculations and final results.

(iii) ARITHMETIC. This unit carries out the designed calculations on the data. It can perform all operations of addition, multiplication, division, etc. at a very high speed, after the necessary operations are performed, the results are sent back to the memory unit.

(iv) Control Unit; this unit is the nerve center of a computer because it exercises supervision over all other units. Once the data are fed into the input unit, the control unit takes full charge and handles the data as instructed by the computer programmer. It directs the arithmetic unit to perform necessary calculations. It may order information in and out of' storage. Control unit is the most complex in nature and it is also known as programme controller.

The memory unit, the arithmetic unit and the control unit are packed together in a computer. These are collectively known as the Central Processing unit (CPU).

(v) Output Unit. This unit turns out the final result or information in the form of control reports, budgets, etc. It transfers the final information on punched cards, printed-paper or magnetic tapes. If a TV is attached to the computer the end-result or information can also be displayed on the TV screen.

Computers can improve the effectiveness of management information system. They help in providing up-to-date- and timely reports to management for planning and control. Computerized management information systems have revolutionized management planning and control. These systems can. Provide altogether new dimensions to the practice of management. Complex problems require collection and processing of a vast amount of data. Electronic Data Processing (EDP) can handle this task effectively due to its huge data processing capacity. Computers have overcome the computational problems of management. These can be applied both for routine operations like record-keeping as well as for novel operations of project planning and control. Thus, computers have enlarged the capabilities of management and have created a revolution in the field of information technology.

Advantages of Computers. Electronic computers or EDP offer the following benefits:

(i) High Speed Computers can process large amounts of data in a very short period of time. Some high-speed computers can perform as many as six million

operations per second. The access to information is also very fast. In some cases instantaneous information retrieval is possible. Therefore, computer saves valuable time.

(h) Vast Memory. A computer has a greater memory than the human brain. It can store a large volume of data, which can be retrieved as and when necessary.

(iii) Greater Accuracy. Computer calculations are much more accurate than manual calculations. The chances of errors are minimized.

(iv) Avoids Monotony. Computers are highly useful in handling routine and repetitive tasks like preparation of payroll. They help to overcome the monotony and fatigue of clerical staff.

(v) Self-control. A computer can be programmed to direct itself and to perform without human intervention up to a limit. It cannot think for itself but it has an in-built ability to distinguish between two numbers and choose the larger or positive one.

(vi) Integrated Approach. Computers provide an integrated approach to handle various systems in operation. They assist in effective coordination and control.

(vii) Remote Processing. With the help of computers, a manager can obtain information directly from various plants and branches around the country and process it at one central place. Many persons at different locations can simultaneously use the same computer through time-sharing and telecommunications.

(viii) Corporate Image. Computers help to improve the goodwill and prestige of a company by providing better and faster service to customers and dealers.

Limitations of Computers. Computers suffer the following drawbacks:

(i) A large amount of capital investment is required to install a computer therefore, small firms cannot afford computers.

(d) The maintenance of a computer is a costly and difficult task. Much preparatory work is often necessary for the installation of a computer.

(iii) Any breakdown of the computer may completely dislocate the clerical operations of the enterprise.

(iv) Employees generally resist the installation of a computer for fear of losing their jobs.

(v) Trained personnel are required to operate a computer and as a result cost of labor may go up.

Installation of Computers. Before installing a computer and electronic data processing system, the following steps should be taken:

1. Requirements. The needs of the organization for computer should be analyzed. It may be desirable to install a computer only when the volume of information is large enough to permit full utilization of a computer. Analysis of needs will also indicate the types and number of computers, which the organization should acquire. If sufficient volume of work is not there, it may be better to hire a computer.

2. Feasibility. It is necessary to carry out a feasibility study to determine whether the firm cannot afford the capital and trained personnel for the installation of a computer.

3. Profitability. A comprehensive cost-benefit analysis should be carried out to guide whether the benefits expected from the installation of a computer justify the costs involved. A computer should be installed only when the benefits are expected to be more than the costs.

4. Education of Staff. - Installation of a computer may make some employees redundant. Education should be provided to overcome the employees' resistance to computers. An undertaking may be given to convince the employees that the surplus stiff will be suitably employed and no individual will be retrenched.

Systems Theory and Management

The systems concept can be a useful way of thinking about the job of managing. It provides a framework for visualizing internal and external environmental factors as an integrated whole. It allows recognition of the proper place and function of subsystems. The systems within which businessmen must' operate are necessarily complex However, management via systems concepts fosters a-way of thinking which, on the one hand, helps to dissolve some of the complexity and, on the other hand, helps the manager recognize the nature of the complex problems and thereby operate within the perceived environment. It is important to recognize the integrated nature of specific systems, including the fact that each system has both inputs and outputs and can be viewed as a self-contained unit. But it is also important to recognize that business systems are a part of larger systems - possibly industry-wide, or including several, may

be many, companies and/or industries, or even society as a whole. Further, business systems are in a constant state of change - they are created, operated, revised, and often eliminated.

System

The term' system' is in common use. One speaks of an educational system, computer system and many others. A system is composed of integrating parts that operate together to achieve some objective or purpose. In other words, a system is not a randomly, but consists of elements which can be identified as belonging together because of a common purpose, goal, or objective. Systems can be abstract and physical deterministic and probabilistic and closed and open. An abstract system is an orderly arrangement of interdependent ideas or constructs. A physical system is a set of elements, which operate together to accomplish an objective. A deterministic system operates in a perfectly predicable manner. The inter action among the parts is known with certainty. The probabilistic system can be described in terms of probable behavior, but a certain degree of error is always attached to the prediction of what the system will do e.g., an inventory system. A closed system does not exchange material, information, or energy with its environment but an open system exchange information, material, or energy with the environment e.g., biological systems such as man.

Definition of Systems

A system is "an organised or complex whole; an assemblage or combination of things or parts forming a complex or unitary whole". The term system covers an extremely broad spectrum of concepts. For example, we have mountain systems, river systems, and the solar system as part of our physical surroundings. The body itself is a Complex organism including the skeletal system, the circulatory system, and the nervous system. We come into daily contact with such phenomena as transportation systems, communication systems (telephone, telegraph, etc.), and economic systems.

The antonym of systematic is chaotic. A chaotic situation might be described as one where "everything depends on everything else". Since two major goals of science and research in any subject area are explanation and prediction, such a condition cannot be tolerated. Therefore there is considerable incentive to develop bodies of knowledge that can be organised into a complex whole, within which subparts or subsystems can be interrelated. Before

proceeding to a discussion of systems theory for business, it will, be beneficial to explore recent attempts to establish a general systems theory covering all disciplines of scientific areas.

Elements of the System: Five basic elements are worthy of examination:

1. The total system's objectives, and the related performance measures. A common fallacy in stating objectives is t o emphasize the obvious, since it is no easier to determine a system's real objectives than it is to determine those of an individual. As a result, the controller must move from a vague statement of objectives to a more precise and specific set of measures of performance for the overall system.

2. The environment must be studied once objectives and performance measures have been determined, since this sets fixed constraints. The environment determines to a large extent how the system will perform, but, by definition, its characteristics are beyond the system's immediate control.

3. The system's resources (or inputs) enable it to perform its role. The system has control over these, and information systems can therefore be constructed to record all the relevant data for decision-making purposes-including lost opportunities, since these indicate lessons from utilizing resources for one purpose rather than another. Balance sheets and profit and loss accounts exclude certain resources (e.g., personnel factors) and foregone alternatives, thereby rendering them inadequate as complete statements of system resources.

4. The sub-systems, or components, of the total system must be delineated, and measures of performance, activities, and goals determined. Traditional thinking has been limited to departments or divisions as sub-systems, but the 'Production Department' is not necessarily the same thing as the 'Production Sub-system'. It is more logical to think in terms of missions (i.e., the rational breakdown of tasks that the sub-systems must perform). Only in this way can a sub-system's contribution be measured, and the controller will be involved in clearly specifying cost centers that are congruent with the systems approach. The aim should not be the simple accumulation of costs, as this is another measure of inputs, but should be a measure of how the output contributes to the goals of the system.

5. All the previous factors, along with the generation of system plans, are aspects of the management of the system. Not only must the firm's management device

the plans, it must also be ensure that the system is carrying them out. It is the definition of objectives, the allocation of resources, and the degree of adjustment necessary to co-ordinate the multiple purposes of the numerous systems and sub-systems in a firm that make the task of management so difficult and exacting.

General Systems Theory

General systems theory is concerned with developing a systematic, theoretical framework for describing general relationships of the empirical world. A broad spectrum of potential achievements for such a framework is evident. Existing similarities in the theoretical construction of various disciplines can be pointed out. Models can be developed which have applicability to many fields of study. An ultimate but distant goal will be a framework (or system of systems), which could tie all disciplines together in a meaningful relationship.

There has been some development of interdisciplinary studies. Areas such as social psychology, biochemistry, astrophysics, social anthropology, economic psychology, and economic sociology have been developed in order to emphasize the inter-relationships of previously isolated disciplines. More recently, areas of study and research have been developed which call on numerous sub fields. For example, cybernetics, the science of communication and control, calls on electrical engineering, neurophysiology, physics, biology, and other fields. Operations research is often pointed to as a multidisciplinary approach to problem solving. Information theory is another discipline, which calls on numerous sub fields. Organization theory embraces economics, sociology, engineering, psychology, physiology, and anthropology. Problem solving and decision-making are becoming focal points for study and research, drawing on numerous disciplines.

With these examples of interdisciplinary approaches, it is easy to recognize a surge of interest in larger-scale, systematic bodies of knowledge. However, this trend calls for the development of an over-all framework within which the various subparts can be integrated. In order that the interdisciplinary movement does not degenerate into undisciplined approaches, it is important that some structure be developed to integrate the various separate disciplines while retaining the type of discipline, which distinguishes them. One approach to - providing an over-all framework (general systems theory) would be to pick out phenomena common to many different disciplines and to develop general

models, which would include such phenomena. A second approach would include the structuring of a hierarchy of levels of complexity for the basic units of behavior in the various empirical fields. It would also involve development of a level of abstraction to represent each stage.

We shall explore the second approach, a hierarchy of levels, in more detail since it can lead toward a system of systems, which has application in most business and other organizations. The reader can undoubtedly call to mind examples of familiar systems at each level of Boulding's classification model.

1. The first level is that of static structure. It might be called the level of framework; for example, the anatomy of the universe.

2. The next level is that of the simple dynamic system with predetermined, necessary motions. This might be-coed the level of clockworks.

3. The control mechanism or cybernetic system, which might be nicknamed the level of the thermostat. The system is self-regulating in maintaining equilibrium.

4. The fourth level is that of the ", open system", or self- maintaining structure. This is the level at which life begins to differentiate from not-life; it might be called the level of the cell.

5. The next level might be called the genetic-societal level; the plant typifies it, and it dominates the empirical world of the botanist.

6. The, animal system level is characterized by increased mobility, teleological behavior, and self-awareness.

7. The next level is the "human" level, that is, of the individual human being considered as a system with self-awareness and the ability to utilize language and symbolism.

8. The Social system or systems of human organization constitute the next level, with the consideration of the content and meaning of messages, the nature and dimensions of value systems, the transcription of images into historical record, the subtle symbolizations of art, music and poetry, and the complex gamut of human emotion.

9. Transcendental systems complete the classification of levels. These are the ultimate and absolutes and the inescapable and unknowable, and they also exhibit systematic structure and relationship.

With the general theory and its objectives as background, let us, direct our attention to a more specific theory for business, a systems theory that can serve as a guide for management scientists and ultimately provide the framework for integrated decision making on the part of practicing managers.

Systems Theory for Business

The biologist Ludwig von Bertalanffy has emphasized the part of general systems theory, which he calls open system. The basis of his concept is that a living organism is not a conglomeration of separate elements but a definite system, possessing organization and wholeness. An organism is an open system, which maintains a constant state while matter and energy, which enter it keep changing (so-called dynamic equilibrium). The organism is influenced by, and influences, its environment and reaches a state of dynamic equilibrium in this environment. Such a description of a system adequately fits the typical business organization. The business organization is a man-made system, which has a dynamic interplay with its environment - customers, competitors, labor organizations, suppliers, government, and many other agencies. Furthermore, the business organization is a system of interrelated parts working in conjunction with each other in order to accomplish a number of goals, both those of the organization and those of individual participants.

A common analogy is the comparison of the organization to the human body, with the skeletal and muscle systems representing the operating line elements and the circulatory system as a necessary staff function. The nervous system is the communication system. The brain symbolizes top-level management, or the executive committee. In this sense an organization is represented as a self-maintaining structure, one that can reproduce. Such an analysis hints at the type of framework which would be useful as a systems theory for business - one which is developed as a system and that can focus attention at the proper points in the organization for rational decision making, both from the standpoint of the individual and the organization.

The scientific-management movement utilized the concept of a man machine system but concentrated primarily at the shop level. The so called ''efficiency experts" attempted to establish procedures covering the work situation and providing an opportunity for all those involved to benefit-employees, managers, and owners. The human relationists, the movement stemming from the Hawthorne-Western Electric studies, shifted some

of the focus away from the man-machine system per se to interrelationships among individuals in the organizations. Recognition of the effect of interpersonal relationships, human behavior, and small groups resulted in a relatively widespread reevaluation of managerial approaches and techniques.

The concept of the business enterprise as a social system also has received considerable attention in recent years. The social- system school looks upon management as a system of cultural interrelationships. The concept of a social system draws heavily on sociology and involves recognition of such elements as formal and informal organization within a total integrated system. Moreover, the organization or enterprise is recognized as subject to external pressure from the cultural environment. In effect, the enterprise system is recognized as a part of a larger environmental system.

Since World War II, operations research techniques have been applied to large, complex systems of variables. They have been helpful in shop scheduling, in freight yard operations, cargo handling, airline scheduling, and other similar problems. Queuing models have been developed for a wide variety of traffic and service-type situations where it is necessary to programme the optimum number of "servers" for the expected "customer" flow. Management-science techniques have undertaken the solution of many complex problems involving a large number of variables. However, by their very nature, these techniques must structure the system for analysis by quantifying system elements. This process of abstraction often simplifies the problem and takes it out of the real world. Hence the solution of the problem may not be applicable in the actual situation.

Simple models of maximizing behavior no longer suffice in analyzing business organizations. The relatively mechanical models apparent in th6 "scientific management era gave way to theories represented by the "human relations" movement. Current emphasis is developing around "decision making!' as a primary focus of attention, relating communication systems, organization structure, questions of growth (entropy and/or homeostasis), and questions of uncertainty. This approach recognizes the more complex models of administrative behavior and should lead to more encompassing systems that provide the framework within which to fit the results of specialized investigations of management scientists.

The aim of systems theory for business is to develop an objective, understandable environment for decision-making; that is, if the system within

which managers make the decisions can be provided as an explicit framework, then such decision-making should be easier to handle. But what are the elements of this systems theory, which can be used as a framework for integrated decision-making? Will it require wholesale change on the part of organization structure and administrative behavior? Or can it be woven into existing situations. Organizations will remain recognizable. Simon makes this point when he says:

1. Organizations will still be constructed in three layers; an underlying system of physical production and distribution processes, a layer of Programmed (and probably largely automated) decision processes for governing the routine day-to-day operation of the physical system, and a layer of non-programmed decision process (carried on in a man-machine system) for monitoring the first-level processes, redesigning them, and changing parameter values.

2. Organization will still be hierarchical in form. The organization will be divided into major subparts, each of these into parts, and so on, in familiar forms of departmentalization. The exact basis for drawing departmental lines mi ay change somewhat. Product divisions may become even more important than they are today, while the sharp lines of demarcation among purchasing& manufacturing, engineering, and sales are likely to fade.

We agree essentially with this picture of the future. However, we want to emphasize the notion of systems as set forth in several layers. Thus the systems that are likely to be emphasized in the future will develop from projects or programmes, and authority will be vested-in managers whose influence will cut across traditional departmental lines.

There are certain key subsystems and/or functions essential in every business organization which makes up the total information- decision systems, and which operates in a dynamic environmental system subject to rapid change. The subsystems include

1. A sensor subsystem, /designed to measure changes within the system and with the environment.

2. An information processing subsystem such as an accounting, or data processing system.

3. A decision-making subsystem, which receives information inputs and outputs planning messages.

4. A processing subsystem, which utilizes information, energy, and materials to accomplish certain tasks.

5. A control component, which ensures that processing, is in accordance with planning. Typically this provides feedback control.

A memory or information storage subsystem, which may take the form of records, manuals, procedures, computer programmes, etc.

A goal-setting unit will establish the long-range objectives of the organization, and the performance will be measured in terms of sales, profits, employment, etc., relative to the total environmental system. This is general model of the systems concept in a business firm. In the following pages a more specific model illustrating the application of the systems concept is established.

Systems Concepts And Management Managers are needed to convert the disorganized resources of men, machines, and money into a useful and effective enterprise. Essentially, management is the process whereby these unrelated resources are integrated into a total system for objective accomplishment. A manager gets things done by working with people and physical resources in order to accomplish the objectives of the system. He co-ordinates and integrates the activities and work of others rather than performing operations himself.

Structuring a business according to the systems concept does not eliminate the need for the basic functions of planning, organization, control, and communication. However, there is a definite change of emphasis, for the functions are performed in conjunction, with operation of the system and not as separate entities. In other words, everything revolves around the system and its objective, and the function is carried out only as a service to this end. This point can be clarified by reviewing each of the functions in terms of their relation to the model of the systems concept illustrated previously.

Planning

Planning occurs at three different levels in the illustrative model. First, there is top level planning by the master planning council. Second, the project and facilitating systems must be planned and resources allocated to them. Finally, the operation of each project and facilitating system must be planned.

The master planning council establishes broad policies and goals and makes decisions relative to the products or services the company produces. It

decides upon general policy matters concerning the design of the operating systems and selects the director for each new programme. It is the planning council, which receives informational inputs from the environmental and competitive systems. It combines these inputs with feedback information from the internal organizational. System and serves as the key decision-making center within the company. Much of the decision making at this level is nonprogrammed, unstructured, novel, and consequential. While some of the new techniques of management science may be helpful, experienced, innovative top executives must place major reliance upon mature assessment of the entire situation.

Once these broad decisions have been made, the planning function is transferred to the resource allocation and operating committees. They plan and, allocate facilities and manpower for each new system and supply technical assistance for individual systems design. At this planning level it is possible to utilize programmed decision making operations research and computer techniques.

The third level, planning the operations of each project or facilitation system, is concerned primarily with the optimum allocation of resources to meet the requirements established by the planning council. This planning can most easily be programmed to automatic decision systems. However, the project director would still have to feed important non-quantifiable inputs into the system.

Under the systems concept of planning there is a direct relationship between the planning performed at each of the three levels. The first planning level receives informational inputs from the environment and competitive system and feedback information from within the organization. It translates this into inputs for the next planning level, which in turn moves to a more detailed level of planning and provides inputs for the third or project level. One of the major advantages of this systems model is to provide a clear-cut delineation of the responsibility for various types of planning. This concept facilitates integrated planning on a systems basis at the project level within the organization. Given the inputs (premises, goals, and limitations) from the higher levels the project managers are delegated the function of integrated planning for their project.

Organization

Traditional organization theory emphasized parts and segments of the structure and is concerned with the separation of activities into tasks or operational units. It does not give sufficient emphasis to the interrelationships and integration of activities. Adapting the business organization to the systems concept places emphasis upon the integration of all activities toward the accomplishment of over-all objectives but also recognizes the importance of efficient subsystem performance.

The systems basis of organization differs significantly from traditional organization structures such as line and staff or line, staff, and functional relationships. There are three major organizational levels, each with clearly delineated functions. The master planning council has broad planning, control, and integrative functions; the resource allocation committee has the primary function of allocating manpower and facilities, and aids in systems design for the facilitating or project systems. One of the major purposes of this type organization is to provide an integration of activities at the most important level - that is the individual project or programme.

Staff specification of skills is provided for the master planning council through such groups as financial, research and development, and market research. Their activities, however, are integrated and co-ordinate by the planning council. There are specialists at the operating level who are completely integrated into each project system. Thus, the activities of these specialists are geared to the effective and efficient performance of the individual project system. This type organization minimizes a major problem associated with staff and functional personnel - their tendency to associate their activities with specialized areas rather than with the optimum performance of the over-all operation. Yet, under the model the importance of initiative and innovation are recognized. In fact, the major function of the master planning council is planning and innovation. Specific provision for receiving information inputs from product and market research are provided in the model.

One of the great advantages of the systems concept for organizing pertains to the decentralization of decision-making and the more effective utilization of the allocated resources to the individual project system. This has the merit of achieving accountability for performance through the measurability of individual systems of operation.

Control

'The systems concept features control as a means of gaining greater flexibility in operation, and, in addition, as a way of avoiding planning operations when variables are unknown. It is designed to serve the operating system as a subsystem of the larger operation. Its efficiency will be measured by how accurately it can identify variations in systems operation from standard plan, and how quickly it can report the need for correction to the activating group.

We must conclude that error is inevitable in a system, which is subject to variations in input. When the lag in time between input and output is great, more instability is introduced. Feedback can reduce the time lag; however, corrective action, which is out of phase, will magnify rather than overcome the error. Every system should be designed to make its own corrections when necessary. That is, a means should be provided to reallocate resources as conditions change. In our model the Systems Review Committee should be aware of any change in operating conditions, which might throw the system "out of control". Replanning or redesign may be required.

In controlling a system it is important to measure inputs of information, energy, and materials; and outputs of products and/or services. This will determine operating efficiency. In addition it may be important to establish points of measurement during critical or significant stages of processing. Such measurements would be used principally to help management to analyze and evaluate the operation and design of individual components. The best approach is to spotlight exception, and significant changes. Management can focus their attention on these areas. One important thing to remember is that the control group is not a part of the processing system - it is a subsystem, serving the operating system. Cost control can be used as an example to illustrate this point. The cost accountant must understand that his primary objective is to furnish managers with information to control costs. His task is to inform, appraise, and support; never to limit, censure, or veto. The same principle applies to every control group serving the operating system.

Communication

Communication plays a vital role in the implementation of the systems concept. It is the connecting and integrating link among the systems network. The flow of information, energy and material - the elements of any processing

system - are co-coordinated via communication systems. The operating system requires information transmission to ensure control. Communication systems should be established to feedback information on the various flows - information, energy, and material. Information on the effectiveness of the planning and scheduling activities (as an example of information flow) would be helpful in adjusting the nature of this activity for the future. Similarly, reports on absenteeism are examples of communication concerning the energy flow (the people in the system) to the processing activity., Information on acceptance inspections an example of information stemming from the material flow aspect of an operating system. All to these feedback communication systems provide for information flow to a sensor and a control group. Comparison between the information received and the information stored (the master plan for this particular operating system) would result in decisions concerning the transmission of corrective information to the appropriate points.

Relationships within and among various project systems and between the levels of the system as a whole are maintained by means of information flow, which also can be visualized as a control device. Moreover, any operating system maintains contact with its environment through some sensory element; the sensory elements in this case are the groups reporting to the master planning council. The master planning council makes decisions, concerning the product or service the organization will produce, based on information gained from market research, research and development, and financial activities. In a sense, these activities function as the antenna of the organization, maintaining communication with the external environment. The master planning council melds the information received through these activities with other premises covering the internal aspects in order to make decisions about future courses of action. Here again, communication or information flow can be visualized as a necessary element in controlling the course of action for the enterprise as a whole. Based on the feedback of information concerning the environment in general, the nature of competition, and the performance of the enterprise itself, the master planning council can continue its current courses of activity or adjust in light of developing circumstances.

Thus, communication or information flow facilitates the accomplishment of the primary managerial functions of planning, organizing and controlling.

Communication by definition is a system involving a sender and a receiver, with implications of feedback control. This concept is embodied in the lowest level projects or subsystems, in all larger systems, and in the system as a whole. Information-decision systems, regardless of formal charts or manuals, often flow across departmental boundaries and are often geared to specific projects or programmes. The systems concept focuses on this approach and makes explicitly the information-decision system, which might be implicit in many of today's organizations.

Pervasiveness of System Concepts

Many of the most recent developments in the environment of businessmen and managers have involved systems concepts. For example, the trend toward automation involves implementation of these ideas. Automation suggests a self-contained system with inputs, outputs and a mechanism of control. Yet the concept also recognizes the need to consider the environment within which the automatic system must perform. Thus the automated system is recognized as a subpart of a larger system.

The kinds of automation prevalent today range in a spectrum from sophisticated mechanization to completely automatic, large-scale production process. Individual machines also can be programmed to perform a series of operations, with automatic materials-handling devices providing connecting links among components of the system. In such a system, each individual operation could be described as a system and could be related to a larger system covering an entire processing operation. That particular processing operating could also be part of the total enterprise system, which in turn can be visualized as a part of an environmental system. Completely automated processing systems such as oil refineries are also commonplace today. In such cases the entire process from input of raw material to output of finished products is automated with pre-programmed controls used to adjust the process as necessary, according to information feedback from the operation itself.

Physical distribution systems have received increasing attention on the part of manufacturers and shippers. The concepts of logistics, or materials management, have been used to emphasize the flow of materials through distribution channels. The term rhochrematics has been coined to connote the flow process from raw-materials sources to final consumer. In essence, these ideas embrace systems concepts because emphasis is placed on the total system

of material flow rather than on functions, departments, or institutions, which may be involved in the processing.

In recent years increasing attention has been focused upon massive engineering projects. In particular, military and spare programmes are becoming increasingly complex, thus indicating the need for integrating various elements of the total system. Manufacturing the product itself (a vehicle or other hardware) is quite complex, often involving problems of producibility with requirements of extremely high reliability. This is difficult to ensure for individual components or subsystems. In addition, each subsystem also must be reliable in its interrelationship with all other subsystems. Successful integration of sub components, and hence successful performance of a particular product, must also be integrated with other elements of the total system.

Information Theory

Meaning of Information: Information is a fact, datum, observation, perception or any other thing that adds to knowledge. The number 1,000 taken by itself is not information; it doesn't add to anyone's knowledge. The statement that 1,000 students are enrolled in a certain college is information. Information is obtained either by direct observation or by communication. Most of a manager's information is obtained by communication. Even in the simplest responsibility center, the manager could not observe with his own senses everything that is going on, nor would he want to devote his time to doing so, even if it were possible. Instead, the manager relies on information that is communicated to him in various ways, ranging from informal conversations to formal reports.

Definition of Information: information, as commonly understood, refers to raw data, organised data, the capacity of a communication channel, etc. In the words of Gordon B. Davis "Information is data that has been processed into a form that is meaningful to the recipient and is of real or perceived value in current or prospective decisions".

The information processing system processes data in unusable form into usable data that is information to the intended recipient. In a world of uncertainty, information reduces uncertainty. It changes the probabilities attached to expected outcomes in a decision situation and therefore has value in the decision process. Information may have several attributes:

(i) True or false: It may coincide with reality or not. If the receiver of false information believes it to be true, the effect is the same as if it were true.

(ii) New: It may be completely new and fresh to the recipient

(iii) Incremental: it may update or new increments to information already available.

(iv) Corrective: It may be a correction of past false information.

(v) Confirmatory: It may confirm existing information.

This is still valuable because it increases the recipient's perception of the correctness of the information.

It was John Die fold who coined the term "Information Resource Management" (RIM). The concept is that information has a value and cost. It must be preserved, protected, controlled, planned and utilized like any other valuable asset in a corporation such as money, material, equipment or people. Though this may not sound revolutionary, instances are not wanting where companies are not treating information with this understanding.

The Die fold Research Programme report on the administration of information resource is states, "The ultimate goal of IRM is to put in place mechanisms to enable the company to acquire or produce the data or information it needs, of sufficient accuracy and quality, in time and with avoidable cost.

This is accomplished by creating conditions whereby all levels of the organization come to look upon information not as free goods but as a costly and valuable asset that must be treated with the same management discipline as is currently afforded to financial assets, human resources, materials assets and other resources the company utilizes to achieve its aims".

The similarities between information as a source and other corporate assets are many. It possesses fundamental value like money, raw-materials or labor. It has measurable characteristics such as method, difficulty and cost of acquisition. It comes in various forms and degrees of reliability. It is to be refined and processed before it can be made use of. It is transported through many hands. Synthetic substitutes are also available. It is an expenditure, which can be standardized, and its cost and benefits could be analyzed.

In a modem corporation, the IRM concept and function is considered important enough to warrant a separate IRM officer. He is responsible for

establishing policies and procedures for information resources. Control over information with policies as to who should have access to what information and how to avoid pilfering is also necessary. it is also possible that the management information services (MIS).in charge can have the responsibility over IRM as it is integral to the operation of MIS. The concept of IRM broadens the conventional dimensions of MIS. In fact MIS normally covers only a portion of the overall information reservoir in a corporation. As such management of information as an entity should go beyond the MIS. High efficiencies can be achieved by optimum the total inflow of information. Information can be about money, people, facilities or materials. it operates along side all of them. It is one of the inputs for the business system. Feedback from the system is also necessary for reforming or modulating the IRM.

Valuable Asset: Pervading the entire organization must be the concept that information is a valuable resource, particularly in the management control and strategic planning areas and that it must be properly managed. This is a subtle but important change in thinking. In fact, in many ways, IRM and MIS are more than a support for the business. It is inextricably bound up with the business itself. One of the manufacturers of IRM is the MIS which will have a higher reporting relationship in the organization and will become more a part of its executive committee.

Value of Information

Suppose the oil company can buy drilling rights to the property for Rs. 10 million, and it is convinced that the Rs. 10 million investment would be worth - while if the property contained at least 10 million barrels of crude oil. It is uncertain as to how much oil the property does contain. It can reduce this uncertainty by obtaining additional information, for example by conducting additional seismic shots or by asking the opinion of a petroleum geologist. In order to obtain this information, it must incur additional costs. Information theory describes a technique for deciding how much the company can afford to pay for this additional information. Since the technique is usually described in the context of problems involving sampling, the amount that the company can afford to pay is called the expected value of sample Information.

Characteristics of Information

1. Purpose: Information must have purpose at the time it is transmitted, otherwise it is simply data. Information communicated may have many purposes

because of the variety of activities of people employed in an organization. The basic purposes of information are to inform, evaluate or persuade and information is needed for identifying problems, solving problems, decision making, planning and controlling. The purpose of supplying information to machines is to give instructions to get upon.

2. Frequency: The frequency with which information is supplied affects its value. Financial statements prepared weekly may not be very useful as they show very little change, whereas annual financial statements may be very useful to the recipients as they show changes big enough to indicate hundreds. Information communication too frequently tends to act as interference and the receiver does not take it seriously. Further, the frequency with which information is transmitted depends upon the operational needs of the receiver of the information. At operating levels such as accountant, accounting information may be transmitted immediately the financial transaction takes place. At the top management level, this may not be the case, as they require information on important matters, which need their attention.

3. Cost: Cost is a limiting factor in obtaining information. Value of the information should be evaluated against its cost. It may be difficult to know the value of the information but even then efforts should be made to know the value before designing any information system,.

4. Reliability: Reliability is the degree of confidence the decision-maker places in the information. It is more expensive to obtain more reliable information. Reliability should be evaluated with value and best of the information and information system should be designed accordingly.

5. Continuous or Discrete: The information transmitted may be continuous or discrete in form. The accounting information to the accountant is of continuous nature whereas information given to the managers in the form of reports on sales, production, cost or financial position at different periods of time is discrete nature.

Noise: Suppose that the chief executive officer reads in a report that the actual profit of one of the divisions in the company in the preceding month was 10 percent below the budgeted profit. This message could convey to him the signal that the performance of this division was unsatisfactory; the division was not contributing as much to the companies profit goal as the budget indicated that it should. This signal might be correct, but, on the other hand, for any of a number

of reasons it might not be correct; the performance of the division might in fact be perfectly satisfactory. An information system that conveys ambiguous messages of this sort is said to be noisy. Information theory provides approaches to measuring the amount of noise in an information system. These techniques have turned out to be valuable in studying ways to improve electrical systems, such as the telephone system, but they have no practical application to management systems, beyond suggesting the common sense ideas that noise is present in all such systems, that it never can be eliminated, but that measures to improve the clarity of the messages in the system as worthwhile.

Relevance: A person receives through his senses vast quantities of information, more than he possibly needs or can use, but his brain acts to filter most of it, and he is consciously aware of, and acts on, only a tiny fraction. For example, the ears of an automobile driver pick up innumerable sounds, which are disregarded, but if the sound of an engine knock appears, the brain brings this message to his consciousness for appropriate action. Similarly, a business information system is constructed with the objective of filtering out unneeded information and conveying only relevant information to the decision maker. Designers of management information systems cannot know exactly what information about the organization will be relevant. They nevertheless attempt to extract from reality that information that they believe to be relevant, to filter out irrelevant information, and to communicate various types of information to users of the system according to their perception of the needs of each user. The idea of relevance has great practical importance, particularly since the advent of the computer. It is easy to design a system that spews forth mountains of information; it is much more difficult to decide what small fraction of that information is likely to be useful.

Precision: There are two types of quantitative information: counts and measurements. Counts can be precise; if one counts twelve persons in a room, the number is exact, in the sense that there are not twelve and a fraction. A measurement is never precise. Measurements are always approximations. With modern radar, the distance from a point on the earth to a point on the moon can be measured within an accuracy of a few feet, but there is that margin of error of a few feet. All measurements are estimates that are accurate only within a range. Most messages in a management information system are measurements, rather than counts. All accounting information (with the trivial exception of the amount of cash in a small business) is derived from measurement. Inventory quantities

maybe obtained by counts, but the monetary amount of inventory is a measurement. Measurements of such items as the expenses of an accounting period are likely to be fairly rough approximations. In a management information system, there is usually a tradeoff between precision and timeliness. An estimate of sales revenue for a month that is made available on the first day of the following month is usually more useful to the manager than an estimate that reaches him two weeks later, even though the latter is more accurate because it has been double checked, reports from outlying offices have been include-, and so on.

Types of Information

Information can be either systematic or nonsystematic. Our discussion is generally limited to information that flows through a formal system, but it is important to keep in mind the fact that a great deal of information reaches the manager from sources outside the formal system. Newspaper and other news media, conversations, and even a manager's perception of a colleague's facial expressions are important sources of information. Many managers give more attention to such sources than to the formal reports.

Information can be external or Internal. Much information that is relevant to the manager flows into the organization form the outside environment. This information can be systematic-regular reports from trade associations, government agencies, and so forth-or it can be unsystematic. Information from and about the environment that surrounds the organization is important, but we do not discuss it extensively in this book because of its wide variety. Our description is primarily concerned with information that is generated inside the organization.

Accounting Information: Information can be accounting or non-accounting. Although both types of information are important, we tend to give more attention to accounting (i.e., financial) information. The reason is that the management control system is built around an accounting core. The outputs of a responsibility center are the goods and services that it provides to other responsibility center or to customers; accounting provides a way of aggregating these often-heterogeneous products into single amount revenue. The inputs of a responsibility center are the hours of labor services, kilos of materials, and units of various services that it uses; accounting provides a way of aggregating these heterogeneous inputs into a single amount, expense. Profit, which is the

difference between revenue and expense, is an overall measure of the performance of the responsibility center, encompassing within it the results of actions that create revenue and the expenses associated with those actions.

Not only does accounting provide a way of aggregating physically unlike elements, an accounting system is also a disciplined way of doing this. The fundamental rule that debits must always equal credits, and the safeguards built into the system of recording and summarizing transactions provide assurance that there is appropriate support for the validity of the numbers that flow through the system and that part of a given transaction has not slipped through a crack and disappeared. Efforts, and even fraud, can sometimes occur, but these are relatively uncommon, and users, in most circumstances, can trust accounting numbers more than they can trust numbers that come from a system that is not governed by the debit-and-credit mechanism.

Operating Information: By far the largest quantity of Information that flows through a business is operating information, that is information that is generated in the course of day-to-day operations. There is great variety in this information, but in general terms it can be classified into a relatively few main streams, some of the most important of which are:

A production stream, consisting of records showing the detail on orders received from customers, instructions for producing the products to meet these orders, and records of work in process and finished goods inventories. The nature of the production stream varies widely in different industries, but it tends to be similar for companies within a given industry. In some industries, such as banks and insurance companies, the majority of employee's process "papers" in essentially the same way that employees in a factory process material.

A purchasing and materials stream, consisting of records having to do with materials and services ordered, with their receipt, with keeping track of materials while they are in inventory, and with their issue to the production departments.

A payroll stream, consisting of records which show how much each employee has earned, the nature of the work that employees did, and how much they have been paid. Because payroll records must conform to requirements set forth in social security regulations, there is a great deal of similarity in the payroll records of most companies.

A plant and equipment stream, consisting of records showing the cost, location, and condition of each significant non-current asset, together with the related depreciation data.

A sales and accounts receivable stream, consisting of detailed data on each order booked, each sales transaction, the credit to accounts receivable that is generated by the transaction, amount that customers pay, and amounts that customers currently owe.

A finance stream, consisting of records of cash movements and cash balances, investments, borrowings and payments made to lenders, and dividends and other transactions with shareholders.

• Cost stream, consisting of records of costs incurred in manufacturing goods or rendering services.

• Responsibility accounting stream, consisting of the revenues, expenses and investment of responsibility centers.

With the exception of the responsibility accounting stream, these streams of information are required for purposes other than management control. Summarizing data that was originally generated for other purposes derives much information used in the management control process. The additional cost of using these data for management control purposes is relatively small. Indeed, there is such a tremendous difference in the cost of summarizing information that exists in these operating streams and the cost of collecting data *de nove*, that systems designers often specify that management control information be obtained from operating information, eve n though the available data are not quite what is desired.

Management Control Information

In the management control process, information is used for planning, for co-coordinating, and for control. It is appropriate here to make some general comments, particularly on the nature of information that is used for the control process *perse.*

Information Reports Vs. Control Reports: To the extent that the manager's needs for information can be predicted, reports can be designed that will meet these needs; one such report is the control report, which essentially reports, actual performance compared with planned performance. However, in planning,

and coordinating the work of the organization, management needs information beyond that contained in control reports. Management therefore also receives - information reports, that is, reports intended to tell management what is going on, but not specifically designed to facilitate the control process.

These reports may or may not lead to action. Each reader studies them it) detect whether or not something has happened that-is worth looking into. If nothing of significance is noted, which is often the case; the report is put aside without action. If something does strike the reader's attention, an inquiry or action is initiated. The information on these reports comes both from the accounting system and also from a wide variety of other sources. Included are reports of orders received, the status of accounts, receivable, the status of inventories, general news summaries, stock market prices, actions of competitors, and government regulations.

The important point is that a management control systems cannot be viewed as consisting entirely of a set of reports; each designed to show information that is relevant in the control process. It also consists of a wide variety of reports, which may, but also may not, contain relevant information.

Control Information: The essentials of the management control process that provides a basis for making comments about the type of information that is useful in that, process. The process starts with the preparation of plans. These plans are made within, the context of goals and strategies which have been decided, on, in the strategic planning process, and they take account of -other, relevant information, that bears on the problem of how the organization can operate effectively and efficiently to reach its goals. The plans are-expressed as programmes, budgets, objectives, and in other terms.

Motivational Reports and Economic Reports: Control reports are of two general types. One is intended to report on personal performance, and the other to report on economic performance. Since the first type is intended to motivate managers, it is often called a motivational report. Essentially, such a report compares actual performance for a responsibility center with what a performance should have been under the prevailing circumstances. Presumably, the budget states the responsibility manager's commitment to a certain level of performance, and reports show how well he has carried out this commitment. Behavioral considerations are important in using such reports.

Appropriate Standards: Standards used in control reports are of three types: (1) predetermined standards or budgets, (2) historical standards, or (3) external standards.

User-oriented MIS

The detailed decision process is a function of information and behavioral and environmental factors that shape the process. The quality, quantity, flow and timing of information supplied by the MIS to the decision maker's are critical. The value of information is closely linked with its timeliness. Moreover, the degree of processing of the information depends on the ultimate user, namely, the Board, the chief executive, the manager, the operators, or the chief Accountant. What is highlighted and how it is presented will have to vary depending on the user.

The decision maker must find ways of selecting important elements and evaluating them before reaching a decision. In olden days it was the rule of thumb and past experience. In modern days guidelines are evolved for this purpose. Similarly, the requirements will vary for short-range decisions and long-range decisions.

The modern management assignment or decision-making process consists of the following steps:

- Search for the problem;
- Stating a problem;
- Collection of data;
- Development and testing a model representing the problem solution;
- Manipulation of the model to determine outcomes of various input conditions;
- Selection of the best course of action; Implementation of the course;
- Feedback and correctives.

The formulation of the model and its manipulation distinguishes the modem decision-making process from the earlier ones.

For a dynamic business system, it is necessary to review, either periodically or continuously, the nature of output in order to attune the systems

for the changes in its own operations or changes in the environment. In addition, in a business system, one has to observe whether the output is profitable or acceptable. By means of models and assessed quantitative methods, the various solutions can be quantified, analyzed, compared and in processes, information plays a very important role.

Information for Strategic Planning and Management Control Strategic Planning:

Economic trends and forecasts:

- Economic developments and forecasts for next five years;
- Growth of specific process and other industries the company serves;
- Trends in population, price levels, labor forces;
- Demand forecasts for major products and equipment;
- Major projects in different industries to be implemented in next five years;
- Demand/capacity ratios in various industries;
- International developments of interest to the company.

Political trends and developments:

- Analysis of political developments leading to investment opportunities;
- Implications of new regulatory legislation;
- Political shifts of particular significance to the company.

Social trends and forecasts:

- Major social trends and their impact on the company,
- Trends in education, health, living habits and leisure: -time activities.

Competitive information:

- Past performance, present, activities and future plans of the major competitors;
- Planned development and launching of new products and facilities;
- Planned mergers/acquisitions, plant re-locations, R & D activities.

Technological trends and forecasts:

- Major breakthroughs in process plant technology-,
- Equipment design trends;
- Predicted obsolescence of products and services.

Market data:

- Analysis of current and projected market shares
- Sales forecasts for major products and equipment;
- Innovations in marketing, advertising and sales promotion;
- Analysis of customer buying habits and preferences.

Internal data for planning:

- Analysis of past performance and product profitability;
- Plant productivity and manpower; and facilities utilization.

Management Control,

Overall company performance

- Financial performance, monthly profit and loss, and balance sheet; Company budget performance and utilization;
- Progress of capital expenditure projects;
- Company performance statistics.

Sales and marketing performance:

Sales invoiced, (actual vs. forecast), division-wise, region-wise, etc.). Orders booked and order backlog,

- Profit margins, actual Vs, forecast;
- Sales expensed (actual Vs. budget, division-wise).

Production performance:

- Actual shop output Vs. planned output, plant-wise; Manufacturing statistics, plant utilization, scrap, rework, overtime, etc.

Material and inventory status

Actual level of stocks Vs. planned stocks, store wise and category wise; - Work-in-progress, plant wise; - Major purchase orders placed and outstanding; - Performance measures.

Personnel status and performance

Company personnel status report, plant wise and category/skill wise; - New recruits Vs. requisitions; - Personnel statistics, staff turnover, absenteeism, promotions etc.

Financial and cost performance:

- Profitability and overhead recovery, plant wise and division wise;

- Cost-over, under-runs, and variance analysis;

- Facilities control report.

Installation of Management Information and Control System

The decision to establish a formal management information and control system (MICS) becomes almost inevitable in today's business climate. The accelerating needs for uniform, concise and timely information by all levels of management dictates the establishment of such a system. The results can be better control of and greater profitability from the enterprise. Essentially, the functioning of a MICS involves transmission of all pertinent data necessary to the conduct of a business to one or more management information centers, where it is maintained mid then disseminated in discrete form to all levels of management. This description provides no reference to computers or any other specific type of data processing equipment. This is to emphasize that possession of data processing equipment is not a pre-requisite for a MICS. Computers, punched card equipment, data collection and transmission equipment, etc., are excellent tools that can, if costs and volume warrant, be extremely useful in a MICS programme.

Reluctance of much management to undertake a MICS programme can be traced to the confusion and lack of understanding surrounding the subject of information systems, and how they can be effectively installed. Management is continuously faced with the frustrations of receiving inadequate, incorrect or untimely information. As a result the validity of management decisions and actions based on this type of information is at times questionable. Timely, adequate and correct information - the means through which management can

effectively monitor, control, and plan -is becoming increasingly elusive as businesses grow in size and complexity.

Progressive companies recognizing this situation are at various stages of development and installation of MICS. In many cases the management of these companies, although disillusioned at times with the progress, costs and results achieved, still continues on the path toward MICS. The reasons for this continued determination on the part of management to pursue MICS can be found in its desire to achieve a state in information. Storage, use and handling that will achieve.

Uniformity of Information: With a single source generating the required information.

Reliability of Information: resulting from adequate controls established and Constantly monitored on all input and output of the system.

On Time Response: communication of established information needs as often and as quickly as desired.

As these items are achieved the benefits resulting from an MICS become evident: the potential for achievement of substantial reductions in operating costs, information that management can refer to quickly and simply to assist in its decision process, and a smoother more efficient organization that can supply the information when needed. With these benefits available, management can realize such basic contributions to cost reduction and higher profits as improved sales forecasting and production control, increased inventory turnover rate, increased productivity of all facilities etc. The realization and extent of any savings is completely dependent upon management's ability to understand and effectively utilize the information generated by the system.

An additional cost savings aspect of installing MICS is achieved through the elimination, modification and/or combination of system and procedures previously used by the organization. These more immediate savings can be impressive, but not nearly as much as the potential long-range savings that can be achieved once the system is installed. Management should also realize that both short and long-range savings could start being attained without waiting for the installation of the entire system.

Following is a representative listing of the type of information that can be made available to management from a well designed and installed MICS. The

ability of the system to produce this type of information on time and in a usable form depends on the means employed to design and install the system.

• Sales status by product, territory, salesman, etc., with variances.

• Cash position.

• Inventory position in units and/or dollars - comparison to budgeted.

• Inventory items not meeting minimum turnover rate for an established period.

• Profit position - by profit centers for an established period.

• Production status - by product, plant, etc., including orders not on time and reasons for variances.

- Projection of inventory and sales position using a simulation model.
- Budget variances of expenses, capital expenditures, projects, etc., by budget centers.
- Personnel skills inventory of all company employees.

Prerequisites to Undertaking MICS

Once management has agreed to consider MICS, but prior to the commitment of any company facilities) it is necessary to review certain aspects of the organization to make sure that MICS will be built on a firm base. This base is composed of the prerequisites described below. Their pre-requisites are all related to people-the key factor is the design, installation and continued growth and success of MICS. Until management feels that these items are in place, or can real y be achieved, it would be best to delay the start of company involvement in ICS.

1.Adequate corporate discipline so that common inter-functional procedures can be implemented.

2. Documentation of potential savings anticipated from installation of MICS. This documentation must include reasonable supporting data to substantiate the savings, and to justify the investment of company facilities for such an undertaking.

3. A relatively stable management, especially at the policy- making level. A company undergoing continual reorganization at this level does not have an environment conducive to effective systems design and installation of this

nature. Paradoxically, an MICS, if properly' designed, will help stabilize an organization as a result of the well-defined responsibilities and controls required for such a system.

4. Management that is willing to commit its time and interest to understand the various plans, techniques and equipment associated with the proposed system. This understanding should be in sufficient detail to enable intelligent monitoring of the costs and progress of the system.

5. The willingness of management to start acquiring and training a core of experienced systems personnel. This core can range in size from one man in a small-company-to a full staff of or more in a major corporation.

5. The presence within the organization of operational personnel who are cnowledgeable, in-depth-concerning the information requirements, methods, procedures and techniques within the functions they are associated with. These personnel will play a major role in the design and implementation of such a system. Management must be willing to relinquish considerable time from the regular duties of these personnel since they will become members of the design and installation committee discussed later.

Design and Installation Committee: Members appointed to this committee will be responsible for the complete design and installation of the system; therefore extreme care should be exercised in choosing members. Top management from he various line functions that will be directly affected by, the system should choose committee members. Appointments should be made on a full time basis since the responsibility of committee membership in terms of what contributions n knowledge and time warrants full-time participation. Members should hold positions at a reasonably high level within their function to ensure their equal status with other committee members and to be assured that they speak with authority on matters concerning their function. The committee should have at east one member who is experienced in the techniques of systems analysis and design. The time saved, as well as the reliability achieved, with this type of experience available would be considerable. The committee must be given authority to solicit assistance from any segment of the organization when needed.

MICS Steering Committee: The steering committee, composed of top management personnel, with the president as chairman (if practicable), will have the basic responsibility of reviewing all major recommendations and proposals

presented by the MICS design and installation committee as well as monitoring the progress and costs of the system design and installation. The steering committee is in the best position to insure that all recommendations, designs and costs are consistent with the established policies and goals of the company.

Policies and Decision Rules: the design and installation committee subject to review and approval of the steering committee determines the basic guidelines and parameters of the system. Ali policies and rules must be compatible with the established long and short-range plans and objectives of the Organization. These policies and decision rules should basically be concerned with the following aspects of the organization

1. The functional areas of the organization to be included in the system and their priority during design and implementation.

2. The degree of centralization of the system, especially in a multi-division or multi-plant organization.

3. Criteria for establishing the type and frequency of reporting.

4. The universal information requirements of all functions in the system.

5. Establishment of standards for measuring trends and budgets against actual performance.

Determination of this information by the design and installation committee should be made on a scheduled basis with specific assignments for each member.

The Preliminary Installation Plan: with the knowledge gained by members of the design and installation committee from the previous step, the committee should develop development of a preliminary installation plan at this point. The plan should include: (i) A listing of all steps needed for installation of the system in each, functional area of the organization, the estimated time to accomplish each step and the person responsible for its successful completion. (ii) Manpower requirements for achieving full installation. (iii) Any equipment requirements and estimated funds needed for their acquisition.

This data should be thoroughly documented and submitted to the MICS steering committee for approval. Once approved, this data will from the basis for monitoring the programme. Because of the tentative nature of any schedules and requirements developed at this stage, it becomes extremely important to

establish effective communications between the two committees. Progress review meetings and 'appropriate progress reports must be established on a scheduled basis.

Detailed Systems Design Specifications: This step produces the complete details required by the design and installation committee for completing the installation plan and schedule. In addition to detailed specification produced .at this point will be used by programmers, procedure writers and training personnel for preparing their output.

Any system specification for which use of data processing equipment appears feasible should be submitted to selected equipment manufacturers for purposes of soliciting proposals. Members of the design and installation committee should review the submitted proposals with -each manufacturer. The procurement or rental of data processing equipment should be approved by the steering committee.

The detailed systems specifications, written and documented, should include:

(a) Input Specifications - including form content, form design, means of preparation and transmission, current and anticipated volumes, etc.

(b) Output Specifications - including content and format, distribution, Frequency, current and anticipated volumes, etc.

(c) Processing Requirements - defining in detail what is required to be done with the input to achieve the required output.

(d) File Descriptions - the detailed contents and volumes (present and anticipated) of all files needed for the system.

(e) Control Requirements - all controls necessary to ensure accuracy of input and output.

Documentation of these specifications should be under the direction of a senior systems designer who is thoroughly trained and experienced in this type of effort. Line personnel members of the design and installation committee win play a major role by contributing the necessary detailed operating information and systems design suggestions in this step.

The Final Installation Plans and Schedules: At this point the design and installation committee should establish the final installation plain as a result of

the detailed data generated from the systems design specifications. Before starting installation of any part of the system, the following must be considered.

Preparation of a detailed installation plan and schedule for each segment of the system should be accomplished through the joint effort of the design and installation committee and operating personnel of the functions involved. The plan should include the means of phasing in the new procedures and phasing out the old (if any exist). For each installation step, assignment of responsibilities to a specific individual must be made, and detailed instructions for accomplishing each installation step must be written. This will lessen the possibility of error or misunderstanding. Training for those involved in any special tasks required for installation should be instituted when necessary.

Programming: If data processing equipment will be used by the system, the design specifications described previously are furnished to trained programmers who are responsible for the documenting of instructions (programmes) that will enable the equipment to efficiently process the input and produce the required output. In addition, the testing of the programme to insure reliability and accuracy in meeting the systems design specifications is included as part of the task required completing this step.

Procedure Writing - there are two types of procedures, required at this stage in system installation. Both types should be written and maintained on a permanent basis.

1. Standard Operating Procedures (S.O.P.) cover in detail the specific duties and responsibilities of each person assigned to perform a job within the system. This type or procedure should include the detailed actions to be taken under varying conditions, relationships with other functions, etc. These procedures will form the basic curriculum for the training programmes to follow.

2. Policies and procedures are applicable to inter-functional information flow. Included should be specified control requirements and control points, assignment of responsibilities, etc.

Training: The training programme is intended for all personnel-whose positions expose them to the new system, even indirectly, and is composed of two segments: (i) A description of the total system to indicate in general terms the, relationships and responsibilities of each function to the whole system. (ii) A detail description of a segment of the system to be performed by specific

operating personnel, e.g., orders processing. In this segment training should cover the step-by- step duties and responsibilities of each person. The use of S.O.P. and policies and procedures as training tools is a necessity. Members of the design and installation committee should assist the training staff in all phases of the training programme.

General Comments: In addition to the steps discussed above, the following comments related to a MICS installation are presented because of their importance.

1. During and following installation of any portion of the system, the need for change in the design becomes evident. Causes for changes can range from some overlooked piece of information required by a function to a major reorganization of a department. The design and installation committee must, therefore, have the ability to react rapidly to such causes in order to determine the system changes required and to modify installation plans to reflect these changes.

2. The need for adequate planning and control of all installation steps has been mentioned before. PERT or CPM techniques-have been used with great success in this area, and the author strongly recommends the use of similar techniques for the planning and control of any MICS installation.

3. The Impact on personnel of a company undertaking such a programme as MICS can be significant, either positively or negatively, depending role in the system. There is no doubt that the key to success of an undertaking such as MICS rests to a considerable extent on the amount of understanding and support of the system engendered in a company personnel by management. To achieve positive reactions, management must be willing to undertake an educational programme that is comprehensive enough to overcome the ever present (but usually unjustified) fear created by a pending change in the manner of doing things. This is especially true when the company anticipates the employment of computers and other data processing equipment.

4.The committees described should not be considered luxuries that can be afforded only by the larger company. These committees can be informal and small, e.g., in some small companies two or three men could perform the duties of the design and installation committee. The larger and more complex the company, the greater the representation should be.

5.The need for a detailed written description of all information that is produced during the design and installation of the system is absolutely necessary. This is especially true of all completed procedures, policies, and programmes.

Structured and Unstructured Decision: Implications for Control

Nature of Decision Making: According to Simon* the manager's job consists of recognizing circumstances that require decisions, identifying appropriate actions and finally choosing the moist effective action. Simon has categorized decisions as structured and unstructured (unprogrammed) decisions. Programmed decision is a process, which is in the formula to be adopted by anyone. This demands the least amount of creativity, problem-solving ability and model building need. For example, the reorder point level in inventory management is a programmed decision. When the inventory level falls below the reorder point, the pre-determined or order quantity is used for purchase. For a given level of operation, bank teller deciding to process the cheque presented across the counter is going through the programmed decision.

In the case of non-programmed decision, information availability is low; the need for environmental information is fairly high, is not repetitive and calls for creative intervention by the executive. For example, product mix or production plan is a non-programmed decision. In some organizations promotion may be a programmed decision and in some it may be non-programmed. These two are extreme cases and the most frequently occurring situation is the mixed case of semi-programmed decision. A semi-programmed decision is a situation needing when it is not failing into the expected human intervention pattern.

For example, if there is a condition in the reorder point formula that if the price of the commodity does not exceed a given value, the order quantity is as given. Otherwise, the order quantity will have to be obtained with due consideration to many other factors. Most of the management techniques are developed for the purpose of converting a major part of executive decisions into the programmed category. Thus, most operational decisions fall in the category of programmed decisions and therefore decision-making is highly structured and circumscribed. In these situations, a set of instructions or programme unambiguously defines the action to be taken in all conceivable circumstances. As against this, at the strategic planning level, decisions are unstructured. The task of control is easier in cases of programmed decisions as appropriate operations research models can be formulated for them. As has been indicated

earlier, operational controls involve a larger component of programmed decisions.

The Simon framework and the Anthony-Dearden framework are closely interlinked. Strategic planning involves a greater degree of the unstructured component of decision-making, while operational controls involve a high degree of the structured component of decision-making. It may be difficult to put an exact numerical figure that would indicate the extent of structured decision-making involved in strategic planning, management control and operational control. However, an understanding of the Simon framework of programmed and unprogrammed decisions would help in identifying areas in the management control process for which definite procedures can be worked out. Table 10.1 indicates the increasing extent of structured decisions as we move from strategic planning to operational controls.

The Simon framework coupled with the recent advances in computer technology, forms the basis for designing the decision support systems (DSS). The DSS are systems in relation to key decisions and tasks with a view improving the effectiveness of the manager's problem-solving process. The concept of DSS has basically evolved from two major streams of research and thought. The first stream is the Simon framework of programmable (structured) and non-programmable (unstructured) tasks and the second stream are the technical advances in interactive computer systems. Integrated research in the two streams has lead to decision support as a distinctive concept and methodology for developing computer-based decision aids. The DSS aims at utilizing analytical power and the data processing capabilities of the computer for managerial decisions. It implies the use of computers to:

1. Assist managers in their decision processes in semi-structured tasks;

2. Support, rather than replace, managerial judgment;

3. Improve the effectiveness of decision-making rather than its efficiency.

Therefore, the DSS is essentially computer-based support for taking managerial decisions in semi-structured decision situations.

Organization Structure to Control Systems Design

A major factor differentiates the automatic control system from the management control system, is the exercise of control by human beings in the

latter case. In automatic control systems, the human element is missing. It is for this reason that an understanding of organization behavior is important for the proper perception of management control systems and processes. Further, as the major focus of the control system is on the performance evaluation of the organizational sub-units, the control system designer should also have an undemanding of the organization structure. Structure refers to the way the enterprise is organised so as to enable the total task of the organization to be performed in an efficient and effective way. The organizational structure is essentially the arrangement of its sub-systems with authority and responsibility relations. Thus, it refers to whether the organization is centralized or decentralized or whether it emphasizes line or staff or how the 'boxes' are arranged.

In the past, designers of organization structure recommended the following broad guidelines: (i) clear lines of authority running from top to bottom of the Organization. It should be possible to trace a chain of command from chief executive to every employee; (ii) there must be unity of command. No one in the organization should report to more than one boss; (iii) the accountability and authority of each responsible person should be clearly defined avoid overlapping of tasks and authorities; (iv) the responsibility should always be coupled with corresponding authority and the responsibility of the higher authority for the acts of his subordinate is absolute, i.e., a manager may delegate authority. However, he cannot disassociate himself from the acts of his subordinate; (v) the work of every person in the organization should be confined as far as possible to the performance of a single leading functions, thereby permitting specialization in tasks, (vi) line functions should be separated from staff functions. Line functions are essentially those that accomplish the main goal or objectives of the organization such as manufacturing, selling, etc. These are also referred to as operating departments. Staff functions aid in or are auxiliary to line functions. These are generally advisory in nature; (vii) there are limits to the number of persons that can be co-coordinated by a single manager. This limit is known as 'span of control'.

These traditional principles of organizational design could not meet the test of the new organizational forms that had to be designed to meet the complexities of the organizations, which were not necessarily bureaucratic in nature. A contingency theory was evolved to explain some of the complexities. Contingency means it depends. Therefore, the contingency theory aims at

analyzing each situation and designing structure taking into consideration task performance and individual group satisfaction, rather than using universal models and fitting them to any situation. There are multifarious relationships between design variables and therefore it is necessary to draw up a task- analysis matrix, indicating tasks and their relationship with design variables, such as objective of the organization, technology, size, people, managerial styles, and so on. If task profiles are similar or interdependent, such tasks can be combined in a department or section. Theses tasks should therefore be integrated into an efficient and satisfying whole. One of the most important integrative mechanisms is hierarchy, which is also the most important characteristic of structure. Other techniques for integrating are the drawing up of rules and procedures for the expected behavior, devising of mechanism for handling information, delegating and referring fewer decisions upwards for approval and making planning a culture in the organization.

In using a contingency approach to design an organization structure rather than transplanting perhaps an outmoded model from a similar institution, the following variables need to be analyzed: (i) objectives, (ii) time orientation,(iii) task differentiation, (iv) people involved, including experience, motives, numbers, (v) market (or external) pressure, (vi) technical system, (vii) managerial style, (viii) ethos and culture of the organization.

Major Forms of Organization Structure

On the basis of analysis of various design variables, organizational structure can be broadly categorized into four major forms: (i) a functional organization, in which the tasks are differentiated on the basis of each major function such as marketing, production, etc., with each manager responsible for the specified function; (ii) a divisional organization in which differentiation is on the basis of a product line or group of product lines with the manager responsible for all the functions related to such a product line or group of product lines, (iii) a matrix organization, in which there is two way differentiation, namely according to functions and according to projects, with both superimposed on each other, (iv) a network structure aimed at closer inter-institutional co-ordination among a network of agencies involved in implementing a programmed or a project.

Functional Structure: In a functional structure, the tasks are differentiated, on the basis of each major function and each manager is responsible for one of

these. Thus, there is functional specialization such as marketing, production, finance, personnel, R & D, etc. In such a structure, those with authority can tell others what to do in that function. Such structures have a high degree of centralized decision-making.

Organizations with functional structure can benefit from the economies of scale and also improve the quality of output because the activities of a given function are centralized. One of the major questions in such organizations is whether one functional manager has staff or a functional authority in relation to other functions, e.g., can the head of marketing tell the head of production what to produce (functional) or can he play only an advisory role (staff) In such organizations, therefore, the top management must plan and co-ordinate the activities of the various functions and resolve conflicts between various functions. In such organizations, since profits are the result of joint efforts, it is difficult to identify the responsibility for profits to individual managers. Further, except for the chief executive, others do not have an overall perspective of the enterprise, and managers tend to have a functional bias.

Divisional Structure: In case of divisional structure, the divisional manager is responsible for all or almost all the functions related to a product line or group of product lines.

Matrix Structure: In matrix structure, task forces are created to solve a problem. There is a basic permanent organization structure: super imposed on it is another structure in which the focus is a project.

Network/Coupling Structure: The network of the organization is used to implement large national development programmes. In such cases,

A national programme agency works in co-ordination with a network of organizations or institutions, which jointly provide the components of the programme service. The network concept permits a high degree of decentralization, which in turn is a response to the existence of extreme environmental complexity.

In the case of network structures, an important aspect of control is how to achieve effective inter agency and inter-institutional co-ordination. This can be achieved by developing appropriate mechanisms for reciprocal interdependence and seeking lateral influences. In case of network organizations, the role of authority, as the primary source of power decreases, while sources of lateral

influence such as the use of funds, joint planning, political support, mobilization of demand among beneficiaries, and participation of beneficiaries in programme operations, assume greater significance. The coupling structures are structures with inter-locking autonomous but mutually dependent institutions. The three-tier structure in co-operative organizations consisting of an autonomous village co-operative society, an autonomous district- level union and an autonomous state-level federation is an example of such structures. Since mutual interdependence is of a very high order, the viability of each subsystem is dependent upon the performance of the next level. Further, assignment of profit responsibility assumes greater significance in such organizations. Coordination among various units is achieved through involvement of the chief executives in the management of next level organisation through programming committees.

Control Considerations in Choice of Organization Structure

Four different types of organization structures have been identified for managing the tasks of the organization. These are (i) a centralized functional structure, (ii) a decentralized divisional structure, (iii) a hybrid (matrix) structure, and (iv) network/coupling; structure. An important aspect in the design of control systems is that it should be linked with responsibility centers. Because of this intimate linkage between the control system and the organization structure, it becomes important to know about key control considerations in the choice of an organization structure. Important parameters on the basis of which choice of the structure can be decided are (i) efficiency and effectiveness, (ii) economies of scale, (iii) problems of coordination, (iv) assignment of profit responsibility, (v) conflict and cooperation. Since efficiency is related to level of activity, as the level of activity increases efficiency also increases. Size permits the division of labor and specialization within each discipline, which in turn results in increased productivity as a result of better learning of the task to be performed. Therefore, functional structures offer better potential for increasing efficiency. However, the benefits of efficiency are available only up to the optimum size? i.e., the size at which it operates at the minimum cost per output.

Though functional structures offer the advantage of economies once optimum size is surpassed, a subdivision will be called for to a advantage of economies of scale. In practice, it is usually difficult to determine the optimum size for the organization. The assignment of profit responsibility is another important consideration for organization structure design. While the assignment

of profit responsibility is difficult in the case of functional organizations, the divisional structure offers the advantage of assignment of a responsibility to the divisional manager. From the control systems point of view, this is an important factor in favor of divisional structure. It may, however, be pointed out that within a division, the departments are organised on functional basis and therefore the control problem within the division is similar to the control problem confronted in functional structures.

The issues related to conflict and cooperation assume importance if is greater interdependence and if it is difficult to assign specific responsibilities for non-achievement of targets. In functional structure, inter- function conflict is likely to be more intense compared to divisional structures, design; divisional structures because it vests total responsibility for the project/programme with the manager whose exclusive task is to plan, coordinate and integrate the activities that cut across several functions. In such structures, functional managers have technical responsibility and are expected to provide all the necessary support to the project/programme managers. As this structure suffers from the weakness of diffused responsibility, it becomes difficult to f-LX accountability in case of failures to achieve targets. The network/coupling type of structure is more suited when there is need to create autonomous but mutually interlocked organizations such as the three-tier structure of cooperative organizations, in which each tier is an autonomous organization but is interlocked with the next level. These structures are also better suited in those situations where there is need for greater inter-enterprise coordination among various autonomous enterprises working for the same cause.

KEY BEHAVIOURAL CONCEPTS

The control system aims at evaluating the performance of responsibility centers. The manager heading a responsibility center is rewarded on the basis of performance evaluation of his department. This reward could be monetary or an enhancement of status or appreciation of work. He may also be punished if he fails to achieve the target. This could be in the form of stoppage of normal increments, delayed promotion, or general rebuke: Thus, control systems operate as double-edged swords. This is particularly true in situations where the linkages among various responsibility centers are high and one responsibility center may get the reward at the cost of another. No doubt a large number, of managers dread the formal control system and resist the introduction of such systems.

Since the control process is primarily behavioral in nature, designer of (he control system should have an understanding of how managers would react to formal systems. Since there is an intimate link between organization behavior and the control systems, it is essential to know what motivates managers to achieve the results and what organizational processes lead to better goal congruence between the individual and the organization. The field of behavioral science deals with such questions in detail. Here, we will restrict ourselves to key behavioral concepts that have relevance for control systems. These are (i) perception, (ii) attitudes and beliefs, (iii) motivation, (iv) goal congruence, (v) inter unit conflict and cooperation, (vi) managerial styles, (vii) resistance to change (viii) force, field analysis, (ix) entrapment,(x) compromising and sacrificing and(xi)socio-cultural influences.

Goal congruence

Each individual has his personal goals. He joins an organization to achieve then goals. The personal goal may just be to get a job that assures safety and monetary rewards. The organization, through its top management, sets for itself pals that are desired to achieve. At times there is a conflict between individual pals and organizational goals. Such conflict is more clearly evident in nonprofit organizations such as research and development institutions, and educational institutions. Top management wants these organizational goals to be attained, but other participants have their own personal goals that they want to achieve. These personal goals are the satisfaction of their needs. In other words, participants act in their own self- interest. Here individuals may grow bigger than the organization and this may lead to goal conflict. The control system should be designed so as to integrate the personal goals with organizational goals, and thereby achieve goal congruence. As managers tend to take action according to their perceived self-interest, the control system should ensure that these actions are also in the interest of the organization. Thus, the system should discourage individuals acting against the interests of the organization, e.g., a cost reduction should not be achieved at the cost of quality if the organization has concern for quality products.

In the language of social psychology, the management control system, should encourage goal congruence; that is, it should be structured so that the' goals of participants, so far as is feasible, are consistent with the goals of the organization as a whole. If this situation exists, a decision that a manager regards

as being good from his own viewpoint will also be good decision for the organization as a whole. As McGregor states:

The essential task of management is to arrange organizational conditions and methods of operations so that people can achieve their own goals best by directing their own efforts towards organizational objectives!

Perfect congruence between individual goals and organizational goals does not exist. One obvious reason is that individual participants want as much salary as they can get, whereas from the view point of the organization, there is an upper limit to salaries, beyond which profits will be adversely affected. As a minimum, however, the system should not encourage the individual to act against the best interests of the company. For example, if the management control system signals that the emphasis should be only on reducing costs, and if a manager responds by reducing costs at the expense of adequate quality or if he responds by reducing costs in his own responsibility center by measures that cause a more than offsetting increase in costs in some other responsibility center, he has been motivated, but in the wrong direction. It is therefore important to ask two separate questions about any practice used in a management control system:

1. What action does it motivate people to take in their own perceived self interest, and
2. Is this action in the best interests of the company?

There is a close link between motivation and goal congruence. As motivation involves desire for a selected goal and the drive or pursuit towards the goal, it has two aspects, namely congruence and effort. The achievement of goal congruence may also be affected by the degree of freedom to make decisions, i.e., autonomy given to the managers. Therefore, while designing a control system, the three important aspects related to goal congruence, managerial effort and autonomy should be given due consideration, with a view to motivating managers to achieve organizational goals.

Inter-unit Conflict and Cooperation

The conflict and cooperation are fundamental to all living systems. We observe the predator prey relationships and other similar situations in fife. This phenomenon is also observed in the context of organizations. Conflicts are inherent among various responsibility centers because of their conflicting goals, e.g. goals, the marketing department may like to keep as much inventory as is

possible while the finance manager may insist on reduction of inventory. The conflict between two mutually interdependent divisions is generally evident, because each is trying to optimize its profits. The top Management through appropriate transfer price mechanism resolves this conflict. An important task of senior management is to resolve inter-unit conflicts. The control system as provide necessary inputs for resolving such conflicts. While a certain amount of conflict is desirable for 'keeping the organization healthy, it should not be allowed to reach unmanageable proportions, as it may lead to dysfunctional consequences. As conflict arises partly because of competition, the management may like to keep healthy competition within limits. Since collaborative efforts are also required to achieve overall goals, the control system should foster the cooperation among various responsibility centers. This can be achieved through appropriate coordinative mechanisms, such as creation of coordination committees consisting of those in charge of strategic business units. Khandwala has summed up the various aspects related to conflict and cooperation as follows.

The greater the interdependence between organization units, the more specialized their functions and the greater the differences between their personnel in terms of goals, the means for achieving goals and the procedures for resolving agreements, the greater is likely to be conflict between them. The more restrictive, diverse or technologically complex the environment, the more professionally oriented the top management style (including an emphasis on participation and optimization) and the higher the aspirations of the top management with respect to organizational goals, the greater is the variety of coordinative mechanisms employed in the organization.

Organization Climate: As noted above, perceptions about an organization's goals and about decisions that a manager should take to achieve these goals come not only from the formal control system but also through the Informal organization. Both the formal and informal structure combine to create what is called the organizational climate. As defined by Andrews:

The term 'climate' is used to designate the quality of the internal environment which conditions in turn the quality of cooperation, the development of Individuals, the extent of members dedication or commitment to organizational purpose, and the efficiency with which that purpose becomes translated into results. Climate is the atmosphere in which individual's help,

judge, reward, constrain and find out about each other. It influences morale-the attitude of the individual toward his work and his environment.

Organizational Climate has important influences on motivation. Since to a certain extent an organization is "the lengthened shadow of an individual", the attitude of the chief executive officer toward control is an important ingredient .of the climate. The nature of the management control process in a given organization is much affected by the "style" of the top management in that organization. Some chief executive officers rely heavily on reports and other formal documents; others prefer conversations and informal contacts. The formal system must be consistent with top management's preferences. It follows that if a new top management, with a different style, takes over, the system should change correspondingly.

By its very nature, "climate's cannot be described concretely. Some alternative characteristics are as follows

Focus on results versus focus on following the rules.

Individual accomplishment versus being a member of the team.

Initiative and risk taking versus "not rocking the boat".

Individual gains versus enhancement of organizational objectives.

Tough mindedness in dealing with people versus avoidance of unpleasant actions.

The purpose of the management control system is to insure compliance with polices versus the purpose is to obtain results.

The management control system is an aid to managers versus the system should be circumvented or disregarded.

The relative importance of participatory management versus authoritarian management.

Managerial Styles

The management control process involves determination of targets and setting up the standards. This can be done by two diametrically opposite styles viz., the authoritarian (autocratic) and the democratic styles. The authoritarian leader sets the standards without consulting the persons who are expected to achieve them, while a democratic leader ensures that group determines policies,

strategies and standards. An autocratic leader unilaterally decides what is to be done and assigns the specific tasks to each individual. Quite often he does not indicate the overall purpose of the activity and just tells the people as to what is to be done. He gives general feedback, which is often punitive, and fires at failures. A democratic leader decides along with the group what is to be done and lets the group decide who is to do what and makes sure that a decision is made. He ensures that everybody understands the overall goals, objectives and plans. He gives specific feedback and uses mistakes as an opportunity for coaching and guidance, and tolerates failures. Although the autocratic and democratic styles in theory represent two ends of spectrum, however, in reality, the leaders use a mix of both styles. They are autocratically democratic or democratically autocratic, i.e., they are tough as nails for certain values, ideals and ideas, and adopt an open door policy on other issues or vice versa, if ' the clarity on goals and values is not of high order. Thus, managers usually use a mix of theory X and theory Y, and rarely theory X or theory Y.

Force Field Analysis

Kurt Levin developed the field-force analysis using the field concepts of physics., His field theory is concerned with the dynamics of human motivation. Lewin defines the concepts of 'life space' consisting of the person and the psychological environment, and, life space being the union of these two. According to him, there are two dimensions for every situation facing a person, namely what is possible and what is not possible in that situation. Accordingly, there are certain facilitating factors and certain inhibiting factors related to the situation faced by the individual. These may facilitate or retard progress towards particular events such as achievement of targets, effective performance of the tasks assigned to the individuals. The managerial behavior is determined by the relationship between the person and environment as revealed by facilitating (driving forces) and inhibiting factors (restraining forces) that lead to possible rather than impossible events. The driving forces are those that push the existing situation towards the desired goal while restraining forces are those that hinder the movement towards the goals. The equilibrium is attained as a result of these two forces, just as in Newtonian mechanics.

Levin's framework of force-field analysis is closely interlinked with management control process. During the review meetings for performance appraisal of the responsibility centers, the focus is on identifying the facilitating

and inhibiting factors in the achievement or non-achievement of targets. These are then divided into factors that were within the control of the manager of the responsibility center and factors beyond his control. The reasons are analyzed for non-achievement and remedial action plan is drawn up. This process is very close to the force-field approach advocated by Levin.

Resistance to Change

It has been a common experience that organizations tend to follow the law of inertia. As the introduction of control systems tends to move the organization from one level of equilibrium to a higher level of equilibrium, there is an inbuilt tendency on the part of the organization to resist. A proper understanding of resistance to change is important for the designer of the control systems.

The inertial resistance, which indicates the resistance to change, depends upon the size and age of the organization, technology, age of managers, etc. We quite often hear about removing the dead wood from the organization in order to infuse new thinking and reduce the resistance to change, so as to make the organization an adaptive organization. An important objective of introducing a formal control system is to reduce inertial resistance and make the organization more effective.

Entrapment

At times, managers are hesitant to backtracker make changes that can be construed as an admission of error. They get entrapped because of their own previous decisions and will spend more time and energy justifying their earlier decisions rather than taking any policy shift. This entrapment can be observed in several organizational conflicts. When negative results occur, managers intensify their efforts by putting more resources than are justifiable in a given situation. The U.S. intervention in Vietnam is an illustration of entrapment. In the context of the organization, it must decide on how much R & D expenditure is needed to build a new or improved product. It should decide on how much advertising is needed. A voluntary agency must decide about its representative's withdrawal from the host agency. These represent situations in which managers get entrapped. Entrapment has been more specifically defined as follows.

The term escalation refers to an increase in the perceived or actual size of a conflict. Entrapment is formally defined as a special form of escalation in

which parties involved expend more of their time, energy, money or other resources in a conflict than seems appropriate or justifiable according to some external standards!

Compromising and Sacrificing

Herbert Simon's research related to administrative behavior indicated that managers depict a 'satisfying' behavior. According to Simon,

In actual organizational practice, no one attempts to find an optimal solution for the whole problem. Instead, specialized members or units of the organization make various particular decision or groups of decisions within the whole complex. In making these particular decisions, the specialist units do not solve the problem but find a "satisfactory" solution.

Thus, in real life the managers tend to seek satisfying solutions rather than optimal solutions.

Several times managers tend to seek compromising solution rather than satisfying or optimal solution. While the logic of a situation may demand a particular decision, however, because of pressures and counter pressures, the actual decision taken may be compromising solution. As an illustration of compromising solution we can cite the allocation of portfolios to ministers or allocation of responsibilities in an organization. The ministerial position may not necessarily be given to the most able person but to a person representing a particular pressure group. Compromising is particularly applicable in those dynamic situations where constant readjustments are required to be made because of changes in underlying forces. it may be pointed out that compromising should not be construed in the negative sense.

Another important aspect is 'sacrificing'. The person in charge of one responsibility center may adopt a sacrificing behavior towards other responsibility centers. Such managerial behavior may be observed particularly in those cultures, which inculcate a feeling of sacrificing such as in Japan and India. The sacrificing behavior can be observed in transfer price decisions.

Socio Cultural Influences

A Chief Executive who was assigned the task of turning around a government owned public sector unit, indicated that he derived his inspiration from Rabindranath Tagore and immediately narrated a verse whose translation is

as follows: "Who will take the charge of my work, says the setting sun. Hearing this, the world keeps mum, like a picture dumb. One earthen lamp was there, It said: My lord, I shall strive to do the best I can". Another chief executive, in a briefing session to managers, spoke out several verses from poet Thiruvalluvar's work, Thirukkural, which was written a few centuries before Christ. The author happened to be present in the briefing session, and found the verses inspiring and containing lessons of motivation and leadership. The author was told that a lot of South Indian managers derive inspiration from this scripture. Just to illustrate, here is the English translation of two selected verses. "He (the leader) has capacity to tolerate those who speak harsh words and greet them with a smile (Verse 389). "Get information from independent sources and if they are consistent, accept the information as right" (Verse 586). A businessman highlighted the importance of inaugural ceremony for the newly acquired business premises and indicated that such occasions help in creating an extended family, which is very essential for long-term business growth. One chief executive experimented with Gandhiji's concept of Trusteeship and said that his actions are guided by the principle of sum total good and not the individual good. Another chief executive derived inspiration from the teachings of Lord Buddha and said he attempted to follow the path of Buddha, according to which' the only real victory is one in which no one is vanquished and everyone is victor'. At least some of the Indian managers and businessmen are deeply influenced by the profound teaching of various scriptures of different religions, which have now become part of the Indian cultural heritage. Cultural and religious stimuli, to which every person in the society gets exposed, explicitly or implicitly, influence the organizational culture to some extent. The culture and religion affect our managerial actions through their impact on collective subconscious.

Since the control process involves motivating subordinates to achieve the targets, the meaningful learning's from our scriptures could assist managers in performing their tasks more effectively. As the scriptures shape attitudes and beliefs, their impact on management control process is revealed implicitly or explicitly, in the way managers handle certain situations. If the path of Buddha, in which no one is vanquished and everyone is victor, shapes our attitude then our managerial actions will be determined accordingly. On the other hand if we are trained through the methodology of" win as much as you can', our managerial actions will follow this rule.

REVIEW QUESTIONS

1) What is a management information system? Discuss its role in management control.
2) Explain the information needs of various levels of management.
3) How will you design and install a management information system?
4) Explain the main problems in the installation of a management information system. Suggest guidelines for making a management information system more effective.
5) Describe and discuss the main types of management information systems.
6) Explain the role of computers in a management information system.
7) Write notes on: (a) Decision support system. (b) Expert system. (c) Components of a computer.

inappropriate goals or unattainable goals should be discarded so that two sources are not unnecessarily wasted.

6. The performance of all subordinates against their MBO plan (or targets) be formally reviewed at predetermined times during the plan. Usually a review is made annually but it is advisable for lesser quarterly reviews to be undertaken. In the latter, attention is given to the areas where progress has slow or where some unforeseen bottlenecks have occurred. These may be poor performance of some other subordinates' MBO achievements.

7. Ultimately the performance of the entire organization should be d with respect to the objective set at the start. If there is a discrepancy the objectives decided and those achieved, efforts should be initiated mine the steps to be taken to overcome the problems responsible for discrepancy. This sets the stage for the determination of objectives for the period and the entire cycle of MBO is started again from step 1.

Till a couple of decades ago, 'Management by Objective' was a little known pt. Its phenomenal circulation, all over the world, and in all kinds of undertakings happened in the last forty years or so. The first among management writers to introduce the concept was Peter Drucker writing in the 1950's.Other high priests of the concept were George S. Odiorne and Jhon Humble Odirone stated the concept as:

"a process whereby the superior and the subordinate managers of an enterprise jointly identify its common goals, define each individual's major areas of responsibility in terms of the results expected of him, and use these measures as guides for operating the unit and assessing the contribution of each of its members".

Launching the M.B.O. - The Logic and the Steps

Setting objectives is the first task of all management. Reaching the objective (goal) is the very logic of the management process through organizing, directing and control. In this context to talk elaborately or to introduce the theme of M.B.O., as an innovation might appear naive and laboring a truism. Yet, most organizations, which have seriously introduced M.B.O., have reaped distinct improvement in their management. It is, therefore, to outline the system - step-by-step - logically as it must be introduced in an enterprise.

Step 1: The first step is to set down, formally, the goals of the enterprise. This is essential; for it is often that an enterprise of them this question in a television interview. The chances are nine to one that after half an hour of rambling eloquence, the Chief of the Organization will leave the audience no wiser or himself no clearer about it than when he began his televised dissertation.

Step 2: Objectives the goals so set out and define measures of performance. Perhaps the most important mandate of M.B.O. is that the objectives (at all levels) must be set out in concrete terms; they must be measurable to serve as yardsticks of accomplishment.

Step 3: The goals (sub-goals) at all management levels must then be set out. The process is both deductive and inductive. The sub-goals at the top and lower management and supervisory levels are deduced from the enterprise goal; they are also worked upward (induced) fr6m the bottom of the management pyramid. When these two-stream meet-and found to diverge-starts the process of sifting and adjustment. The result is an agreed set (system) of goal network harmonizing with the enterprise goal. The horizontal levels of goal-centers are simultaneously brought into the net. They support one another, collaterally (at parallel levels) and fit into the goal network up and down the management pyramid.

Step 4: The compulsion of the first three steps is likely to demand adjustment in the organization structure-which must be put through. The goal network when it is built between steps 1, through step 3, has logic of its own. The Organization frame needs to sustain this logic as a close fit.

Step 5: The goals to be set at all levels must be Joint and agreed ones. As previously suggested, goal-setting is not a matter of direction from the top; not even a process of deduction from the top management objective. Contrarily, it is also not a derivative of bottom-level management thinking synthesized into enterprise goal. It is a two-way process, in fact, a participative all-level wisdom put together in cordial discussions out of which emerge the (a) enterprise goal (b) objective and task of top management and (c) the several tasks and targets at all levels of management.

(a) The senior (up in-the management ladder) advises goals for the junior levels; the-latter suggest their own goals (as they see it) and the overall goal for the enterprise. The several merits accrue from the process: (a) the goals set at the

top levels reflect more keenly the interface of the enterprise with the environment. It provides the much-needed link between the organization sub-system and the social system. The goals set by juniors and employees ct, more closely the hard reality and constraints within the enterprise. The set at the top (for all levels) set the dimensions and the challenge; the goals t the bottom (for all levels), the drags and warnings. From out the marriage the two is born the optimum goal, which the enterprise can reach within its constraints after they are stretched and broken with the skill and urge of the Management team.

(b) The searchlight of attention flashed through the details of the enterprise status-illumining in the process, its visible future as it can be carved out of the present; and the whole of the management team is witness to the great act of searching analysis. This leaves the communication line flushed and clear.

(c) The whole team gets involved as a participative network; and the best in them comes out in the process. Their individual goals and several motives are set to compass-point that directs to the common enterprise goal. Goal-erosion, wasted and militating efforts, and cantankerous self-service tend to meet away-fused in the cooperative teamwork.

(d) Management by objective undergoes a mutation toward management by self-appraisal (the utopia of the behavioral theorists) and management by results. Management is no longer a mere series of actions; no longer (as it is, so often) a string of excuses for failures, missed opportunities, fatal unprepared ness. Ideally and managed imaginatively, M.B.O. can indeed unleash the fissionable energies and closeted wisdom of the human beings-all harnessed in the common task.

(e) The leadership is released from the routine of administration. His time (so circumscribed) and energies (of which the fund is sorely strained) are set free for the task of piloting the enterprise through the shoals and turbulence of the frightening dynamics of the modern economic and socio-economic spectrum.

Step 6: There is a continuous feed back from appraisal (review) of internal (and several) goals and the enterprise goal as it is set. The result is two-way interaction by which the internal goals are set to a higher pitch and the enterprise goal is fettled (continuously) to an updated form.

Step 7: Appraisal of results proceed continuously against the goals at all levels-and the closed-system is set a new in its self-correcting cycle. Since all

levels are committed to their distinct and local results, the correction process is self- starting without waiting for advice or mandates from the top.

Step 8: Review of sub-results (at lower levels) throws light on organization results. This helps control and correction and, secondly, monitor and adjust the organizational goal.

Advantages of M.B.O.

(a) Management by objectives may become a powerful tool in gaining mutual commitment and high productivity for an organization.

(b) M.B.O keeps company objectives\ targets constantly in view.

It gives meaning and direction to people in an organization

(c) It coordinates the efforts of various departments of an organization

(d) It provides -motivation to people because they work on objectives decided with their consent.

(e) It prevents flittering away of efforts and money.

(f) It allows greater consistency in decision-making.

(g) It forces, management, to think ahead in respect of its short-term and long-term goals.

(h) It helps an enterprise to focus on the areas where it is vital that preventing progress towards company objectives.

(i) It assists managers in their own self-development leads to an analysis of training requirements if subordinates are to improve their, performance in future years.

(j) MBO leads to better understanding subordinates between superiors and the subordinates.

What's Wrong with M.B.O. - Its Limitations?

Many organizations, in this country and elsewhere in the world, have reaped benefits from a serious application of M.B.O. At the same time, many prominent organization (in the private but more so in the public sector) not adopted this relatively simple and logical system. The process of catching up seems too slow for the process to become a force in business management. The

question must be asked, and answered (however tentatively), Observations in many empirical situations suggest certain reasons:

(a) In a scheme of M.B.O. the leadership quality -and contribution does not find a central place. The leader, of course, (with his team) suggests the goal-at and at lower levels-but that is open for a debate and discussion. An over-reliance is placed on rational attitudes and intelligent consensus. Too the reality situation does not support these premises.

(b) Somewhat allied to the first point is the consensus on the leadership style on which the top and the lower levels must sit down together and agree. a large leadership style goes well (and another. does not) with a certain combination of men and goals that they must accomplish. Of the leadership styles, each one would suit a typical (actual) situation that controls managers and their goals. These are (a) height task-high relation revision); (b) high task low relation; (c), low task-high relation; and (d) low -low relation. These are only different combinations of the level (difficulty challenge) of the task set and the level (quality, experience, etc.) of the managers available to accomplish them. M.B.O., to be more rewarding, has to reach not only agreed goals down the line but a combination of goal-leadership nexus appropriate to the situation. This does not convey that agreement on this combination is either rigid or irreversible. In fact, this agreement ought to be an understanding, open for continuous review and discussion (and therefore adjustment) between the levels of management concerned.

(c) The scheme does not assign sufficient weight age to goal conflicts. It does lean heavily on continuous adjustment of goals-at all levels in the light of actual performance and evolving environment but the basic (almost total) assumption is that the whole system moves objectively and rationally. This is not realized in practice.

(d) Society being what it is (and there are no signs of the symptoms abating), three levels (at least) of motives work toward setting managers' and employees' goal. Not necessarily all of them are on the surface. These are: (i) Rational and objective motives, (ii) Irrational and idiosyncratic motives-which will include personal equations, and (iii) Motives that spring from the mischief element in management. This is the misty area of all reality management which breed's factions, groups, concerted itself-service-worsening (in the extreme situation) into intrigues, conspiracies, and corruption. M.B.O. is at once a victim and a

corrective to these forces. So long as the two latter motives are not effectively bottled up the bed is too inhospitable for the seeds of M.B.O. to flower. With all these comments, let it be recorded that energetic pursuit of the theme of M.B.O. can do no harm. It is a healing process; and by the very act of attacking cobwebs and dank musty areas of management it holds back the germs of plague that ever threaten to engulf the unwary management.

(1) One of the pre-requisites for effective implementation of MBO is a clear thinking at the corporate level translated into long-term plans. Many organizations have over the years, implemented MBO and improved their operations and performance. (2) Effective implementation of MBO requires a good reporting system. This is necessary for taking timely remedial action in case deficiency is noticed in any area. As organization grows in size, this reporting system becomes complex and time consuming. It may not be possible for top management to directly supervise each and every activity at lower interested in critical activities rather than every activity. Thus, as a by-product of MBO, large organizations introduced what is called Management By Exception (MBE),

In this management technique, higher levels of management will concentrate only on exceptional situations, i.e., critical areas.

Both MBO and MBE are scientific forms of management. However, they can be successful only and only if corporate level executives are capable of thinking ahead and have a real interest in promoting the organizations rather than selves.

Combination of these two qualities are not frequently found and when MBO is introduced in an organization where these are lacking different distorted versions of MBO will appear on the scene. Four such distorted versions in the reverse order of their scientific efficiency, which can be occasionally seen in and around us, are given below.

1. Management By Crisis (MBC): In this type of management, decisions are taken only when a crisis develops. This happens when the organization as a whole is incapable of thinking systematically and scientifically about its future. Because of this, ad hoc decisions are the order of the day. When crisis develops executives are forced to take decisions at least to put out fire. But such decisions most often - though they temporarily put out fire - create future crisis and the organization moves from one crisis to another, demoralizing the entire system in

the process. Even with all the drawbacks of this style of management one has to agree that a certain amount of courage is required by the management to take decisions when crisis develops. Unfortunately there are managements, which do not act even in situations of crisis. Inertia (MBI) calls such type of management".

2. Management By Inertia (MBI): In this type of management the manager believes that, left to itself, a problem will get solved automatically and any action by him is likely to jeopardize his present and future position in the organization. Thus, no actions or decisions are taken on very many important issues. A classic example of this type of management is found in organizations where representations from especially individual employees are not listened to for years together. Having waited for so long a period, the employee may feel that the management may not consider his request at all. Having, no other avenue to redress his grievance, he reconciles to his situation and later turns out to be a frustrated employee for the rest of his life.

3. Management By Telegrams (MBT): This is a fall-out of Management by crisis. When decisions are taken at the last moment, normal communication channels break down mostly due to lack of time. In this type of management telegrams are the order of the day. In addition to the heavy expenditure which cats the profitability of the organizations, MBT creates other problems also related with non-and wrong delivery of telegrams and distorted message communication. Telegrams, a communication media, which normally should have been used only in case of unforeseen exigencies, today are the major source of communication for many inefficient organizations. In fact, the level of efficiency of an office is directly inverse to the number of telegrams issued and received by that office.

4. Management By Judges (MBJ): In all the above types of management, even though some of them are highly unscientific, a ray of hope remains in the sense that management is still in the hands of persons working in the organization. However, when on majority of the occasions decisions are not taken or decisions are taken on the basis of personal equations rather than merits of the case; persons affected by the issues, be they employees or creditors or customers, feel that justice and fair-play cannot be expected at the hands of the management and the only course left to them will be to approach courts obtaining justice. In such cases decisions are taken by courts rather than by managements. While

efficiency and equity of this method can never be disputed it tells upon the quality of internal management. While every organization may have to adopt all these types of management styles at one time or the other, the overall quality of the management is decided by the ratio of each type of management style adapted to the total management style

Relevance to Indian Conditions

The critical question is how realistic are the assumptions under Indian conditions. How many are creative and imaginative? How many can be trained or led (as distinct from directed) to a commitment to organizational goals? How many employees in India feel a pressing need for self-actualization when their bellies are bullied by hunger? It is absurd to have the lever which controls a machine requiring 200 lb of pull to move it if workers are strong enough to accept only 18 lb to puff. Similarly, it will be foolish to install a system of sharing information, participation and self-control, if it is found that the employees have little or no capacity for initiative, individual action and leadership because of the factors that condition them from infancy to five in a well- defined, almost all-inclusive structure.

Lack of infrastructure

Let us consider the lack of infrastructure to introduce MBO in most of our industries. How can an employee like his job when his main criterion in selecting or applying for a job is monetary benefit rather than aptitude? Any number of instances where post-graduates and graduates apply for lowly paid jobs because of economic reasons can be cited. Whatever care one may take in job recruitment and selection, one cannot altogether avoid the possibility of job dissatisfaction in them. When one has no job satisfaction one naturally tries to evade the work, which in turn results in the need for supervision.

Class conflict: Another problem that makes the introduction of MBO rather difficult is the element of class conflict, which has been pushed to the foreground in recent years by various political parties. Also, opposition to the profit concept must be removed from the employee's mind if MBO is to be effective.

Public sector industries are in no better position. The frequent changes in government policies make introduction of MBO rather difficult. Administrators

sent on deputation who carry with them bureaucratic practices and hoard authority, a sine qua non of MB0-, head most public Sector undertakings

Managers often overlook the fact that MBO requires a new way of life or style of management. It may require a high degree of concentration on one's own leadership style for giving up some of the old authoritarian ways and abolishing new and more participative ways. Are we prepared to shed out old theoretician ways, which we have cherished so long? Even if we assume that re is no opposition to the profit motive it raises many issues because it is based on a reward- punishment psychology. The managers must also realize that the objective plea will not serve the purpose because every organization is a Social system, a network of interpersonal relationship. A man may do an excellent job of objective measurement, but may fail miserably as a partner, as IS Subordinate, or as a colleague. It is common knowledge that people fail to be promoted more for personal reasons than for performance inadequacy.

Furthermore, since every subordinate is a component of his superior's efforts to achieve his own goals, he will inevitably be apprised on how well he Works with his superior and helps the latter to meet his needs. A heavy subjective element in performance appraisal creeps in. The undue complexity in explaining the philosophy of MBO to the Indian illiterate or semi-literate employee should also be taken into account by managers. To alien character the literature on MBO written against a western socio-economic background organizational process has complicated the process of its introduction in

But this by itself should not deter us in our efforts. It is necessary to modify our current management practices and orient out organizational climate to relate MBO to our needs. To conclude MBO is not a panacea for all management problems. But it enables a working arrangement for integrating all that is relevant to achieving organizational effectiveness.

Management Control in Multinational Corporations

Any management control system seeks to ensure opt mum Performance, by a manager as well as by the unit as a whole. It is quite possible that a manager may have performed well yet the performance to the unit might be unsatisfactory. Similarly, managers might not have done well yet the unit's performance might be good due to environmental factors. A manager can be, evaluated by some indicator of managerial performance. Such evaluation helps in deciding his compensation and other rewards. Some indicator of unit

performance can evaluate a unit as on economic activity. It helps in resource allocation an investment decisions. A management control system in multinational corporations provides an early warning about the operations. It provides a set of standards, which facilitates mutually understanding about objectives to be achieved.

CONCEPT OF MULTINATIONAL CORPORATION

The term 'multinational consists of two different Words 'multi' and 'national'. The prefix "multi' means more than one and the word 'national' implies nation or country. Therefore, a multinational corporation may be defined as a company that operates in more than one country. According to the United Nations, Commission on Multinational Corporations a multinational or transnational corporation is a corporation, which operates in addition to the country in which; it is incorporated, in one or more other, countries. Such a corporation owns and controls, business in two or more countries.

A few examples of multinational companies are given below:

1. Unilever Limited. It is a British company that has subsidiaries and branches in several countries. It established a subsidiary company called Hindustan Lever Limited in India.

2. Union Carbide. It is an American company that has plants and subsidiaries in several countries including India.

3. International Business Machines (IBM). It is an American company having branches in several countries..

4. Phillips. It is a Dutch company having a subsidiary company called Phillips India in India.

5. Coca Cola Corporation. It is an American company manufacturing and selling soft drinks in several countries.

In common usage, multinational corporations are also called global corporations and international corporations. While in general these terms may be used interchangeably, there are actually subtle differences between them. Global corporation and multinational corporation represent two extremes whereas international corporation falls somewhere between these two. In a global corporation production facilities are generally centralized. These are located in one or two countries to get the advantage of economy of scale and cost. The

products are exported from these countries to the others depending on demand. On the contrary, in a -multinational corporation, production facilities are decentralized and located in each country. Operations in each country totally Independent in organization. However; within such interdependence, there is always a need for integrating the operations of local subsidiaries with a view to achieve overall optimality for the parent company. Such optimality may be in terms of economy, monetary repatriation, surplus, growth, etc.

An international corporation shall move towards becoming a global corporation or Multinational Corporation depending on the relative strengths a global pull factors and regional Pull factors. When the global pull factors the international corporation shall tend to, become a global corporation. On the other hand, if regional pull factors are stronger, the corporation will become a multinational corporation. ' Some of the global, pull factors and regional pull factors are given below.

Stages In the Development of a Multinational Corporation

Typical stages in the growth of a multinational corporation are as follows

Stage 1. The domestic firm begins to export its products abroad through middlemen in the home country.

Stage II. As sales of products increase abroad, the firm begins to sell directly to an importer located abroad. The firm establishes an export department or division in the home country to handle exports.

Stage III. The firm establishes a sales branch abroad to handle sales and promotional work in a given foreign market. The manager of the sales branch is directly responsible to the home office.

Stage IV. An overseas sales subsidiary is established. It is incorporated in a foreign country and hence enjoys, greater autonomy than a sales branch.

Stage V. The firm starts production in the, foreign country through contract, manufacturing or assembly operations.

Stage VI. A manufacturing facility is established abroad. Now the fain has a subsidiary abroad that, manufactures and sells the product in the foreign -market.

Stage VII. The subsidiaries or operating units abroad are integrated, the parent company takes strategic, or, policy decisions, for all subsidiaries. The subsidiaries operation under capitalized planning and control.

Control System In Multinational Operations

Control in a multinational, corporation, implies control by the home country office (or the parent company) over the host country office (or the subsidiary company). This control may be of two types, (i) control over the performance of the subsidiary as an economic unit, and (ii) control over performance of managers.

Some parent firms exercise a higher control over operations of their foreign subsidiaries while others allow, considerable autonomy. A combined approach may be more effective. Under it present company formulates the basis policies. Within this policy framework subsidiaries conduct their operations independently. The concept and degree of control also, differs from country to country. For instance, quality and punctuality are not given high priority is some countries. Therefore, the standards of the parent company cannot easily be enforced. Scanty, accounting records make financial controls difficult. In some cultures, objective, performance appraisal is not possible because, business relationships are governed by personal relationships. Legal constraints on lay off in a host country may dictate the degree of control. Multinationals who want to invest in India are, demanding a clear exit policy.

Performance of a Subsidiary

A parent company may employ several criteria to evaluate the performance of its foreign subsidiaries. Sales growth, market share, stability in output, asset growth and returns on investment are some of these criteria. Out of these, return on investment,(ROI) is the most widely-used criteria-because the, interest of the parent company ultimately lies in the return on, its investment. The ROI as calculated on the basis of reported profit repatriation may however not show the true return from the subsidiary. This is be-cause it may be grossly distorted, due to the following reasons.

(i) The subsidiary's profits are taxed in the host country and repatriation of profit may be subject to further tax Therefore, the parent company tries -to transfer the money from the subsidiary in various other ways such as high royalty, high interest on loan, high expert fees, etc. As a result the, profit repatriation becomes a grossly understated figure of the true transfer.

(ii) The parent company may transfer money from the subsidiary through the mechanism of transfer prices. In order to reduce tax liability the profits of the subsidiary are understated. For this purpose, all sales to the subsidiary are over priced while all purchases from the subsidiary are under priced. As a consequence, repatriated profit and ROI based on such profit are both under stated.

Transfer prices may be manipulated in the following ways

(a) When there are restrictions on repatriation, of profits, transfer price may be manipulated to transfer funds from the subsidiary.

(b), When the corporate tax rate in the host-country is different from that of the home, country, money may be transferred to the low tax country in order to reduce overall tax liability. For this purpose, profit is shown lower in the high tax country and higher, in the low tax country. In such a case, transfer price should be favorable to the company (whether parent or subsidiary), which operates in the low tax country.

(c) Inflation rates differ from, country to country. There is risk of devaluation of currency, in the high inflation country. In order to avoid, the adverse effect of devaluation money may be transferred from the high Inflation country through manipulation of transfer price.

(d) The parent company May charge low prim from its -subsidiaries operating in countries with high import duty in order to reduce the burden of import duty.

Thus, multinational corporations try to manipulate transfer price, to their overall advantage. However, Governments also try to check such manipulations through regulations. For example, in the USA, the, Government, has powers under Sec. 482 of the Internal ' Revenue Service Code to4etermine the price independently and allocate income between parent and foreign subsidiary so as to reflect the true income of the two companies. Moreover, almost in every country the customs authority has its own Price list for the imported products and duties are charged on the basis of such prices. However, transfer price may be understated in spite of such pre-cautions and regulations.

(iii) Accounting procedures and regulations concerning profit computation tends to be different from country to country. Reported profits may become non-comparable due to differences in methods of inventory valuation, depreciation, investment allowance etc. However this issue becomes important

only when comparisons between two subsidiaries operating in different countries are made.

(iv) The parent company is interested in net repatriated profit (representing the true net flow) rather then in gross repatriated profit. The two figures differ due to host country tax on repatriation, withholding taxes, and home country tax on receipt of foreign profit In order to calculate the act repatriated profit these items must be deducted from the gross repatriated profit.

RISK CONSIDERATION IN FOREIGN INVESTMENT

Any investment involves risk. Risk in foreign investment is all the more. Risks involved in foreign investment may be divided into two broad categories:

1. Economic Risks. Economic risks may arise due to several reasons. First, fluctuations in exchange rate create a serious risk. When the host country devalues its currency due to adverse situation, the' subsidiary faces several problems

(a) The raw materials, which the subsidiary imports, become more expensive.

(b) The product of the subsidiary may become cheaper in the foreign market leading to rise in its export sales.

(c) The domestic raw materials become cheaper in terms of foreign currency. As a result exports of these raw materials may increase. This may lead, to shortage of raw materials in the domestic market. The price of such, raw materials may rise.

(d) Increase in the cost of imported materials and components may lead to increase in the costs and prices, of products. This may give rise to inflation in, the host country.

Inflation, like fluctuations in exchange rate, may create economic risk. When the prices of raw materials and- other imports rise faster than those of the finished product, the profits of the subsidiary decline.

Changes in the economic policies and regulations of the Government in the host country ma directly or indirectly create risk for the subsidiary. Some of the economic risks include additional taxes on foreign subsidiaries, exchange, controls hindering flow of funds, restrictions on imports2 of raw materials and supplies, etc.

2. Political Risks. For a multinational corporation, political risks are often more important than economic risks. Some examples of political risks are given below.

(a) The Government in the host country- may officially socialize/ nationalize the property of the subsidiary as was done in, Cuba.

(b) Seizure of property ad expropriation without adequate compensation, such as in China.

(c) The Government of India restricted foreign equity ownership to 40% under the Foreign Exchange Regulations Act As a consequence Coca-Cola and IBM had to wind up their operations in India in 1977.

(d) The Government in the host-country may encourage the employees of the foreign subsidiary to strike against the, foreign employers.

(e) The host country Government may interfere in negotiations between the subsidiary and industrial labor.

(1) The host country Government may put restrictions a entry of foreign managerial and technical personnel.

(g) Domestic consumers may be provocated to boycott the, products of foreign subsidiaries.

The approach adopted to deal with the problem of economic risks may vary from one multinational to another. In order to reduce risks arising from exchange rate fluctuations and inflation, hedging against foreign exchange fluctuations, linking product price to input prices, escalation clauses in contracts may be employed. Political risks may be insured. For example, Lloyd's of London, Export Credit and Guarantee Corporation of India, etc. cover political risks through appropriate policies. In such cases premium paid to insurance companies constitute an element of the cost.

In some cases, the potential for return in host country is high along with high risk of investment. In such cases, a multinational may borrow locally as much money as possible keeping its own investment to the minimum. Such a practice helps will minimize the loss in the event of expropriation by the host-country Government. In addition, a multinational may transfer as much money as possible in the initial years from the subsidiary. This will help to progressively reduce its own investment and risk.

It is difficult to make an accurate assessment of economic- and political risks because a variety of complex factors influence these risks,

Therefore, many multinational corporations use subjective methods to judge these risks and take investment decisions accordingly. Multinationals, which are in favor of seizing the opportunity and at the same, time reducing the risk use discounted pay back period for project appraisal. They try to get back their money as early as possible. Sophisticated methods of simulation and probabilistic techniques are used in exceptional cases.

MANAGERIAL PERFORMANCE

The performance of a subsidiary may be differ from the performance of its managers. Such difference may arise due to the following reasons:

(i). A subsidiary may perform well due to favorable industrial climate even though its managers have not done well.

(ii) Managers of a subsidiary may have done well still the unit's performance may be, poor due to a general decline in industry.

(iii) Managers may take decisions currently but the current profit is often the result of decisions taken in the. past? For example, heavy capital expenditure made by earlier managers may reduce current profit due to high depreciation. This does not necessarily -mean that the performance of present managers has been poor or unsatisfactory.

(iv) Managers of a subsidiary do not have adequate control over the variables influencing profits. Administered prices of products, centralized decisions by head office on cost items, allocated expenses, strong industry norms and market constrains are examples of such factors. These may leave little scope for managers to increase profits of the subsidiary.

To take care of these factors, many companies make a clear distinction between controllable factors and non-controllable factors. While evaluating the performance of a foreign subsidiary both types of factors (along with related, costs and revenue are taken into account. But in evaluating, managerial performance only controllable factors are taken into consideration

Performance of managers in a particular division, may, be evaluated with the help of a divisional profit and loss account. Such an account can be prepared by modifying the profits and loss account of the company as a whole. Existing

items of cost and revenue may be excluded or modified and new items may be included on the basis of controllability criteria. Controllability of factors may change from situation; the situation and accordingly a company may develop its own guidelines in preparing the divisional profit and loss account. However, some of the ground rules used in practice are given below:

Allocated part of head office expenses is included in the profit and loss account of the subsidiary/branch but excluded from the profit and. loss account for managerial performance.

(ii) Generally, the head office takes the financing decision and not by the subsidiary/branch Therefore, non-operating expenses such as interest are deducted from the profit and loss account of the subsidiary/branch but not from managerial profit and loss account.

(iii) Terminal gains or losses on sale of old assets are shown in the profit and loss account of the subsidiary \branch but not in the managerial profit and loss account.

(iv) While calculating the return on investment (ROI) for managerial performance, idle assets in the subsidiary/branch are excluded from the investment, base, this is because such assets are the result of decisions taken by the head office or previous managers,

(v) Two subsidiaries branches equal in all respects but different with respect to leasehold rent and freehold property's depreciation may have different profits, In case of leasehold the value of the-property is not included in the investment base while leasehold property is included. Therefore, the ROI of two divisions may differ despite similar profits. Therefore, such items should be excluded while calculating the profit for managerial performance.

The above points are common for domestic and multinational companies. In case Of multinational corporations, the following additional points are relevant for evaluating managerial performance:

a) Currency fluctuation. Usually managers do not have control over changes in the value of currency. Therefore, the effects of currency fluctuations are isolated while calculating profit for managerial performance. However, such isolation is not justified when managers can by their decisions minimize the effectiveness o currency fluctuations or they gain through such fluctuations. Such possibilities arise when a manager can

(a) borrow in one currency and, pay in another,

(b) Shift funds to stronger currencies before devaluation,

(c) follow pricing policy to protect against exchange rate fluctuation,

(d) make prior purchases in local currencies, and

(e) Manipulate the capital structure and asset structure to his advantage.

(b) Inflation. In general managers have no control over inflation. However, a manager can reduce the effect of inflation, through proper hedging, forward contracts with suppliers, and price escalation clause on future supply to customers. In such cases, the effect of inflation need not be isolated in evaluating managerial performance.

(c) Other Factors. In some cases the host country provides concessions to a foreign subsidiary f6tbringing in new technology, providing, employment, creating training facilities, etc. These factors lead to increase in reported profit. On the contrary, the subsidiary may be required to pay excessive tax on repatriation and reported profits. Such concessions and taxes should be taken into account while judging the performance of the subsidiary. But in calculating management performance, these items should be excluded. The managerial performance of a subsidiary can be compared with their managerial performanceofdoinesti1c units in the same industry only after excluding these items.

INFORMATION SYSTEM IN A MULTINATIONAL CORPORATION

In order to exercise control, a parent company requires information about, the functioning of foreign subsidiaries. The system of information flow from the subsidiary, to the parent company depends upon the type or degree of control, which the parent company wants to exercise. Generally the parent company exercises overall financial controls and allows the subsidiary to operate independently in almost all matters. Such an arrangement provides sufficient autonomy to the managers of the subsidiary. It may be further reinforced by the following factors:

(a) When the number of foreign -subsidiaries is very large, the parent company may not be able to understand the specific problems of each subsidiary.

(b) The parent company may fail to, appreciate the problems of subsidiaries when the languages used by the parent company and the subsidiaries are different.

(c) Accounting procedures and statues applicable to subsidiaries in host-countries may make it very difficult and cumbersome for the parent company to find the reconciliation. As a consequence, the matters may be left to the subsidiaries themselves.

(d) In a very large multinational, there are so many product groups that the parent company cannot understand the products and problems of subsidiaries. It has to -resort to overall controls.

(e) If the managers of subsidiaries are not properly trained, the parent company cannot interact properly with subsidiaries. The interaction is limited to financial reports, only.

In the following cases the parent company, may exercise detailed control over, its foreign subsidiaries

(i) The parent company may closely monitor the activities of a subsidiary with a new company or a recently acquired company; this may be done to ensure that the subsidiary follows similar policies as that of the parent company.

(ii) The parent company may exercise strict control and close guidance when a subsidiary falters in delivering results.

(iii) The parent company may closely monitor the performance of a subsidiary, which goes into, a totally new business. Such close monitoring will enable the parent company to acclimatize itself with the new business.

(iv) The parent company may closely monitor a subsidiary to protect its rights and property in case of political or social turmoil in the host country

REPORTING SYSTEM IN A MULTINATIONAL CORPORATION

A very large American multinational engaged in communications business had subsidiaries all over the world, e.g., Latin' America, Canada, Europe, Asia, etc. It had a very detailed reporting system consisting of 16 monthly reports and 12 quarterly, half-yearly and annual reports. The monthly reports covered the following:

* Statement of preliminary net income.
* Statement of income'
* Balance sheet
* Statement of retained earnings and changes in retained earnings
* Cash flow statement
* Statistics of employment
* Status of orders received, cancelled and pending
* Inter-company transactions statement
* Statement of transactions with headquarters
* Inventory analysis stalternent
* Receivables Analysis statement'
* Capital projects status, statement
* Capacity utilisation staternrit,
* Statement of operating and financial rievew.
* Report on gains and losses in foreign exchange
* Report on borrowings. schedule and repayments.

On the basis of these monthly reports where reports were prepared. Generally the reports were very detailed. For example, the monthly opera ting and financial review statement ran sometimes to 20 pages or more. Such detailed reporting system showed that the parent company exercised a very tight control over its subsidiaries. The parent company ensured, particularly in the case of new subsidiaries, that all the reports were regularly submitted.

Problems of Management Control in Multinational Corporations

A multinational corporation faces several problems while exercising control over its subsidiaries abroad. Quite often the control system 'used by a multinational depends on the general dynamics of subsidiary operation in the host country. Foreign subsidiaries are often criticized for siphoning of funds from the host country to the parent company. Many countries have tried to restrict parent company's influence over subsidiaries. Several statutory, and

regulatory measures, e.g., reduction of parent's equity holding in the subsidiary, ceiling on repatriation, restriction on capacity expansion, restriction on operation in low technology areas, etc., have been used for this purpose. In some host nations, subsidiaries are required to pay additional tax on repatriated amount' Due to these environmental constraints, foreign subsidiaries work very continuously in their relationship with the parent company. They try to ensure that there is no undue publicity about their ties with the parent company.

Many subsidiaries adopt a positive approach to cope with environmental constraints and host country conditions. They avail of concessions from the host country government by bringing in new technology from abroad, by creating new employment opportunities for local people, by developing backward areas, by training local people in new technology and-processes, etc. The concessions are of several types such as, tax holiday, investment allowance, and removal of restrictions on expansion, exemption from import export duties, etc., country.

Thus, a multinational corporation is not always free to exercise management control over its foreign subsidiaries due to conditions and regulations in host country.

These concessions, however, vary from country to

Management Control System in Service Organizations

* Characteristics of services
* Orientations of a service organization
* Design considerations in services.
* Management control in professional firms
* Management control system in hotels
* Management control in banks
* Management control system in hospitals
* Recent trends in the service industry

In order to meet our daily needs, we buy several products and services. 'Products have shape, size and quantity. But services are intangible. According to Philip Kotler, "A service is any activity or benefit that one party can offer to another that is essentially intangible and does not result in the ownership of

anything. Its production may or may not be tied to a physical product." In recent years, the service has grown tremendously due to growing influence, increasing completely of life and increasing insecurity. For example, credit cards and, travelers cheques are needed for convenience and safety.

Service Sector is very diverse in nature. It consists of public utility services, (electricity, water supply, police, etc.), professional services -(doctors, lawyers, accountants, computer programmers, tax consultants, etc.), leisure and recreation services (hotels, cinema theatres, clubs, casinos, etc.), transportation and communication services, banking, and insurance services, domestic and household services, etc.

CHARACTERISTICS OF SERVICES

Services have several unique characteristics that make them different from products. Some of the most common characteristics of services are given below:

1. Intangibility. It is not possible to see, feel, touch, smell and test a service. For example, when you pay fees for a term in college you are paying for the benefit of gathering knowledge. Due to their intangible nature services cannot be patented. It is difficult to judge the quality and value of a service in advance as sampling is not possible.

2. Inseparability. Generally services cannot be separated from the person or organization providing them. A person who possesses a particular skill provides Service, For example, an electrician has to be physically present to provide the service. The market is geographically limited as direct contact with the client is necessary.

3. Heterogeneity. Services are relatively more labor-intensive and therefore control becomes more difficult. Standardization is not easy. For example, you may have to wait longer for encashing a cheque in. the same bank because the clerk is not as efficient as the previous one.

4. Perish ability. Services are perishable, and cannot be stored. A service if not fully utilized represents a total loss. For example, unsold seats in a cinema hall are lost forever. This loss is all the more when demand for the service fluctuates widely.

5. Ownership. When you buy a service you get access to it but you don't become its owner.

The above features of services have several implications for management control. First, services are generally tailored to the needs of a customer. In other words, a service output-is unique and individually tailored. Secondly, the production and delivery of services are inseparable. These are, therefore, little scope for storage and-delivery at a later date. Thirdly, many services require professional skills. Fourthly, If a manufactured product is defective, -it can be replaced. But a service once provided cannot be replaced. Therefore, the quantity of service must be controlled while the service is being offered. Lastly, service organizations remain small in order to provide personalized service. Therefore, Informal control systems may be adequate for their needs however; airlines, railroads, hotels, etc. are large organizations requiring formal control systems. Thus, control system design has to be made on the basis of the requirements of specific service organization rather than on considerations of general characteristics of the service sector.

Orientations of Service Organization

Service may be people-based or equipment-based. People-based service include household services, legal services, medical services, security services, etc., these may involve varying degrees of professional skills. On the one end, legal, taxation and accounting services require high degrees of professional skills. On the other hand, household and security guard services require almost unskilled personnel. Between these two extremes there are services requiring relatively greater skills, e.g., hotels, restaurants, repair shops, etc,

Equipment-based services include airlines, railroads, dry-cleaning, computers, vending machines, etc., Some of the equipment-based services may require highly skilled operators such as pilots in airlines, programmers in computers. Other equipment based services require relatively unskilled operators such as in dry-cleaning, car wash, etc Some equipment-based services may be automatically and, therefore, may not require any operators. Vending machines are an example of this type.

Management Control in Professional Firms

In a professional firm, the time and talent of the professional person is the key resource. A part of this resource is spent directly for client's benefit and the

remaining part is spent indirectly for promotion and research. Therefore, management control system in a professional firm is designed to monitor the following:

1. The utilization of time,

2. The worth of talent,

3. Billing and realizations, and

4. Acceptance of work by client.

1. Utilization of time; Time use can be monitored through proper time records. Generally, professional firms maintain two types of time records -one relating to professional person's time and the other relating to client-wise time. These records are so designed that client-wise time- and overall time use data can-be compiled from such records at the end of the day. From the time records a professional periodically compiles separately the time spent for administrative work, professional, development, promotion, etc. For the former, a client is charged, and, therefore, it is called chargeable time. The latter is not chargeable but is an indirect cost. Keeping proper time records helps professionals in the following ways:

(a) billing a client,

(b) future fee negotiations,

(c) monitoring the non-chargeable time,

(d) monitoring the ratio of chargeable time to non-chargeable time, and

(e) calculating overhead (more than the cost of the chargeable time) and rate of allocating such overhead to the client.

2. Value of Talent. The general practice in the case of professional services is to charge the client on per-day basis. Per-day fee is in the nature of a standard rate based on:

(a) Chargeable ratio and cost,

(b) Clients ability to pay,

(c) Future potential of the client'.

(d) Nature of services, and

(e) Profit margins desired.

Professional firms, which do not keep detailed time records, either uses a going market rate or a pay-rate-multiple method for charging the clients. In going rate the revenue is generated by the market rates. Therefore, profit can be planned and improved only through cost control. In case of pay-rate multiple method, both cost and revenue can be varied-to achieve the desired profit.

3. Billing and Realization. Professional fee is the key source of revenue for professional firms, therefore, billing and realization of the professional fee is very important for a professional firm. Further, cash position is also an important factor as it indicates the liquidity and ability of the firm to meet its current cash requirements.' A professional firm may use the following indicators to monitor these aspects:

(a) Total amount billed to total value of work done,

(b) Total amount realized to total amount billed,

(c) Total amount unbilled to total value of work done, and

(d) Total cash available to -total so many times of the monthly cash required.

One of the strengths of professional firms is that that hardly use their own funds for running their business. Generally, they receive advances from their clients and pay their liabilities with a time tag thus building a cash surplus. For example, advertising firms get almost the whole fee in advance and pay the publishing media a couple of months later. Similarly, management consultancy firms also charge one-third or half of the whole fee in advance and the balance in installments during the progress of the project.

4. Acceptance of work. In order to gain acceptance, a professional firm should clearly understand the client's requirements. This is generally documented in an agreement; the agreement highlights especially the following:

(a) The objective and nature of professional service

(b) Technical requirements,

(c) Administrative details, and

(d) Mutual responsibility, in initiation and completion of the project.

In the course of relationship, actual progress in, the above dimensions needs to be monitored. Moreover, the professional firm should undertake a review on the quality of work done.

Thus, management control systems in professional firms remain in a fluid state. This is due to vague objectives, non-uniform fee structure, uneven utilization of professional personnel, lack of norms regarding overhead, etc. Management control system is therefore, focused around these factors so as to ensure that these are articulated, as far as possible, in dear terms and monitored accordingly later.

Management Control System In Hotels

Hotel is a high contact service business. -Investment in a hotel is made first but the success of the hotel depends on the quality of the service provided later. In fact quality of service is the most important key to the success of a hotel. Quality of service depends on the attitude and a Performance of the hotel stiff who interact with the customers. Attitude and performance can be improved through:

(a) Proper' training,

(b) Norms of behavior,

(c) Setting up and enforcing objective standards of performance,

(d) Proper career planning, and

(e) Appropriate incentives and motivational system.

Training the hotel staff is a key activity. This activity consists of training on work as apprentice, training in human relations, managerial and supervisory training, etc Norms of behavior can be established by issuing programmed instruction manuals on work behavior, technical proficiency, sartorial requirements etc Objective standards of performance, can be set up through job knowledge sheet Which is used to break down a job into several components with nature of performance set for each. Performance objectives may also be clearly specified for each unit of the hotel. Monitoring may be built in to ensure that the performance standards are properly maintained.

Manpower planning in a hotel is linked to the career Planning of employees. Manpower planning involves five basic questions:

(i) What-would is the level of operations five or ten years hence?

(ii) How will the organization structure look like at that time?

(iii) How much time is required to develop people from inside to man this structure?

(iv) What is the Identified reserve talent?

(v) What is the need for recruitment?

A plan of training and a schedule of recruitment will have to be prepared to find answers to these questions.

Motivation and incentive systems in hotel industry are generally stronger than in most other service industries. Pay-raise, promotions and tips for services provided are direct incentives to workers in a hotel .In some good hotels tips provide as much earning to an employee as his direct pay packet. This system helps in maintaining the quality & service.

In hotel industry, management control system is geared primarily to monitor the above aspects rather than financial data. However, when these aspects are properly monitored, financial performance is assured to a great extent.

MANAGEMENT CONTROL IN BANKS

As service organizations, banks are unique in two ways. First, banks are barometers of the economy. The prosperity or decline of an economy can-be known from the level of banking transactions. Secondly the performance of a bank can be reasonably inferred from its balance sheet. Balance sheet shows the major items such as, deposits and loans, from which interest income and interest expense; can be calculated approximately. Therefore, a bank's planning is done, in terms of growth of economy and general balance sheet items like deposits and loans.

Control systems in banks are designed around the following items, (i), Actual profit Vis-à-Vis profit potential of a bank branch, (ii), Activity-wise performance of bank branches vis-à-vis potential, (iii) Major client-wise performance, and (iv) Overall asset management effectiveness.

Profit-based control. Bank branches are profit centers. But banks face unique problems in operating as profit centers. These problems are:

(a) The interest rates are mainly fixed by the Government. Banks have little freedom to change the interest for increasing profits.

(b) Government decides to some extent the ratio of loans to different sectors.

For example, at least 40 per cent of the total loans granted by a bank should go to the priority sectors.

(c) Banks cannot use all their liquid assets for granting loans. As per the statutory requirements, a bank has to maintain a cash reserve. This limits the amount of loan a bank can extend and consequently its earnings potential.

Management Control System In Hospitals

In hospitals resources consist of receipts from patients, grants and subsidies. The expenses, which are met out of these resources, depend on the types and extent of programmes undertakes by the hospital. Generally, hospital are run as non-profit organizations. However, private hospitals may seek to make profits.

Management control system in hospitals seeks to achieve the following objectives:

(a) Optimum allocation of resources to various activities consistent with the hospital's priorities;

(b) Recovery of cost from patients for services rendered; and

(c) Proper utilization of professional time in the hospital.

A system known as programme budgeting is, used for the purpose, of management control in hospitals. Under this system the total work of the hospital is divided into a number of exclusive activities. For the activities as well as for programmes posts are separately identified and collected so that indicators by way of unit cost can be established; for each programme. Thus, under programme budgeting a relationship between physical aspects of the programme and costs is established. An example of programme and activity is given below:

Programme

General - Control of communicable diseases - Tuberculoses Specific - Proved in indoor facilities for treatment of 150 patients.

Activities:

(a) Construction of a 150-bed ward for patients,

(b) 'Recruitment of three specialist doctors in medicine,

(c) Recruitment of nine paramedical staff

(d) Provision for furniture, fixtures and equipments, and

(e) Medicines and other running costs

Management control system in hospitals can be designed along the above activities. Progress may be monitored with the helper the following indicators of performance:

(i) Treatment cost per patient

(ii) Average time spent by doctors per patient,

(iii) Number of patients admitted vis-à-vis the number of beds available, and

(iv) Number of patients cured and discharged vis-à-vis the number of patients admitted.

Recent Trends in The Service Industry

It has been stated above that services have unique characteristics such as intangibility, tailored to individual miners continuous contact, inseparability of production and delivery, etc. However, in recent years several changes have taken place in these characteristics. Some of these changes are as follows:

(a) Standardized packages in place of tailor made (e.g. banking services, tour packages)

(b) Mechanical contacts in place of continuous personal contact e.g. vending machines in low cost hotels, prerecorded replies)

(c) Time lag between production and delivery in place of simultaneous production and delivery (e.g. educational films, distant learning packages)

(d) Mechanization and programming in place of involvement of professionals (e.g. credit appraisal packages, software packages, health. diagnostic -packages, and other expert systems)

It is expected that some of the conventional services1will be routinised and standardized as the demand for service and data processing capability are

increased. Need for simultaneous production and delivery as well as professional contact may be reduced. These changes will reduce some of the constraints in designing management control systems for service organizations.

Management Control in Non-profit, Organizations

* Meaning of non-profit organization's
* Distinctive characteristics
* Service vs. non-profit organizations
* Types of non-profit organizations
* Pricing in non-profit organizations
* Measuring output
* Management control structure
* Control model for non-profit organizations,

Most of the discussion so for has been about management control systems in profit-oriented organizations. Non-profit organizations also have management control systems. These organizations constitute an important part of the economic and non-economic activities of a country. Non-profit organizations also play a vital role in the development of a society.

Meaning of Non-Profit Organizations

The term 'non-profit organizations' refers to government organizations, educational institutions, religious bodies, foundations, libraries, clubs, Government hospitals, and welfare organizations. These organizations exit to render services rather than to earn profits. Their success is also measured primarily by how well they render the service. For example, the purpose of a library is to provide books and a place for reading and reference. Its performance can, therefore, be measured by how well it renders the service to its readers. Non-profit organizations aim at providing the best possible service with the given resources and the managerial decisions are taken accordingly. The objectives of a non-profit organization are less precise, more diverse and sometimes contradictory.

Distinctive Characteristics

The main difference between profit and non-profit organizations lies in the purpose for which they exist. In addition following differences are found in the characteristics of these two types of organizations:

1. Profit Measure. All organizations use inputs to produce outputs. Effectiveness is measured by the extent to which outputs accomplish the organization's objectives whereas efficiency is measured by the relationship between inputs and outputs. In a profit-oriented Organization the amount of profit provides a useful overall measure of both effectiveness and efficiency in most non-profit organizations output cannot be measured in quantitative terms. Absence of a single measure of performance is the central problem in designing a management control system in non-profit organizations.

2. Market Mechanism. Non-profit organizations are less subject to market forces than profit-oriented organizations. Most non-profit organizations have no direct, competition and hence do not have the spur to use resources wisely that competition provides. Resources are obtained from appropriations, endowments, and cost-based prices rather than from the competitive market place, in the absence of competitive pressures and market mechanism, the allocation of resources in non-profit organizations becomes a game of competition among the in charges of responsibility centers. Every responsibility center may exert pressure to get as large a slice of the budget as possible. Managers In profit organizations undertake new programmes based on the market need. In case of non-profit organizations such programmes are determined on the basis of personal convictions of managers.

3. Relationship with Clients, in a profit-oriented organization the new customer is an opportunity. Therefore, new customers are welcome and potential customers are promoted to increase revenue. On the other hand, in non-profit organizations the new client is a problem because he places an additional strain on existing -resources without additing to these resources. Therefore, such organizations try to avoid new customers. In profit-oriented organizations an increased demand for services is automatically accompanied by additional revenues, which provide the means of furnishing these services, most non-profit organizations, there is no such relationship between the demands of clients and the means of satisfying these demands.

4. Diffused Responsibility. In profit-oriented organizations, policy and Management, responsibilities are vested in the Board of Directors which derives its power from the shareholders. In turn the board delegates power to chief executive who acts as the board's agent in the administration of organization. In most non-profit organizations, the line of responsibility is not clear. Instead of a single chain of command, there are often three somewhat independent power centers:

(a) Contributors, who can exercise control by with holding contributions.

(b) The board which dejure controls the organization, and

(c) The chief executive who in fact holds much control over the board.

The Board of directors in a non-profit organization may be self perpetuating because it is nominated rather than elected. In non-profit organizations, the board has to play a relatively more active role, unless the board is vigilant, the organization may not move in the desired direction.

5. Political Nature. Non-profit organizations are more prone to political pressures. These political pulls and pressures serve as a substitute for the demand function in the allocation of resources. For example, legislators cannot function if he is not reelected. In order to be reelected he must keep people in his constituency happy. The activities which ire undertaken under pressure from political leaders and groups may not be in the best interests of the nonprofit Organization. In the absence of profit as a clear-cut -measure of performance, political pressure may be erratic and illogical reinforced by the whim of public opinion.

6. Legislative Restrictions. Government organizations must operate within legislative enactments, or statutes. Such statutes are more restrictive than the Memorandum and Articles of a private sector company. Statutes prescribe detailed operating practices and it is quite difficult to change them.

7. Value System. Profit-oriented organizations operate on the basis of economy in cost, maximization of revenue, technical and operating efficiency, etc. Financial considerations are the main criteria in managerial decision-making. In contrast, in nonstop fit organizations the valve system of owners plays the key role in decision-making. The ethos and ideals are more important than financial considerations.

8. Role of Professionals. In profit-oriented organizations, managers, play a relatively more important role than the professionals. But in, non-profit organizations, professionals play a greater role. They are the key people for conducting programmer and activities and interact with- the clients is because, professionals are more concerned with technical work add less attracted by financial considerations.

Types of Non-Profit Organizations

Non-profit organizations may be classified into the following categories:

(i)Client-oriented. In a client-oriented organization, service is provided to specific clients and a fee is charged for the services rendered. The fee itself becomes a measure of services or the work done. In such cases management control system can be designed around the fee generated. However, determinatio4p1jee may be quite difficult in non-profit organizations.

(ii) Public-oriented. In this type of organization, work is done for public at large without collecting any fee from them. The service is generally in the nature of "public goods". It is not possible to measure the output, precisely. Public oriented Organization's are unique in several ways. Therefore, it is, difficult to design a control system for such organizations.

(iii) Market-oriented. Such organizations are mid-way between client based and public-based organizations. They provide service to members of the Organization for a fee, which is generally lower than the fee charged by client-oriented organizations. In addition, members get priority in their claim for services over non-members.

Pricing in, Non-Profit Organizations

Generally, pricing is not considered an important issue in non-profit organizations. However, a reasonable pricing policy can provide several benefits:

(i) If pricing is based on market forces (or at least close to market rates), the revenue can be an approximate measure of output. This can be used in the management control structure for measuring efficiency and effectiveness of the non-profit organization.

(ii) Pricing of service markets the user of such services conscious of the value of service and he can decide whether it is worthwhile to avail of the service -at a

given rate. If revenue based on the market price does not cover full cost, it means the users do not consider the service valuable enough to warrant the cost of providing for it.

(iii) Pricing helps in converting responsibility center of non-profit organizations into profit centers. The managers of these centers can then be motivated to increase revenue and reduce costs. This will lead to greater efficiency in the generation and utilization of resources.

Following pricing methods may be used in non-profit organizations.

(a) Full Cost. Non-profit organizations do not aim at profits but must in the long run avoid loss. Therefore, full cost pricing is very common in these organizations. A non-profit organization may, charge full cost price for the primary or core services while the price for peripheral activities may be market price. In case the organization provides a multiplicity of services, it may be desirable to price specific services above or below full cost. However, the organization as a whole should be able to recover its full costs.

(ii) Fug Cost Plus. When a non-profit organization enjoys a monopoly status, there is a temptation to follow full cost plus pricing and thereby generate a surplus. But such pricing runs counter to the ideology of nonprofit organizations; therefore, the temptation to charge margin over full, cost should be resisted. This method may be used to discriminate between members and non-members. Members may be charged full cost white non-members, are required to pay, a margin in addition to full cost.

(iii) Pricing at Lower than Full Cost. Non-profit organizations often, receive subsides from government agencies, patrons and owners for providing services of a certain kind or to a certain target group. Such agencies may attach conditions to the funding. Because of such conditions, non-profit organizations charge lower than full cost price from the beneficiaries of their services. In such cases the beneficiary gets the product at subsidized price. The non-profit of orga'.izations get the full cost reimbursed with subsidy added to the price, urged.

Lower than full cost pricing may create an impression that cost of service is low and consequently demand for services tends to be higher, than what it should be at full cost price. Thus, subsidized price creates distorted demand, and to that extent may result in misallocation of national, resources.

(iv) Advance Pricing. Advance price or prospective pricing is a pre-estimated price determined prior to delivery of service. The client pays on the basis of such price. Such pricing, in contrast to actual cost-based price, provides motivation to non-profit organizations to reduce cost and thereby generate a surplus. In an actual cost' or cost-plus pricing, non-profit organizations do not get such motivation. As the actual cost is reimbursed, there is generally no concern abut controlling cost at all.. Thus from the control point of view, advance pricing has a clear advantage over actual cost-based pricing.

(v) Pricing of Secondary Services or Products. There is no surplus orientation in the main activities of a non-profit organization. But its secondary or peripheral activities may very much have a surplus orientation. For example, in a hospital, the general services such as health care, pathological tests, X-rays, surgical care; meals and bed charges may be, priced on nonprofit basis. However, a fruit shop or toyshop may price its products based on market prices. Similarly, a hospital may sell its disposables on the basis of whatever price the market can fetch, and not on subsidized or cost basis.

(iii) Pricing Unit. In non-profit organization the pricing unit should be specific and small so that it serves as a good unit of cost and output measure. A very broad pricing unit, both the charges per day in a hospital may not show the mix of various services offered during the day one patient may have availed 'or surgical facilities with expensive drugs and another may be waiting only for an overall charges .If both are charged' on daily basis, it would -not only be unfair but also An incorrect measure of true 'services tendered by the hospital. Therefore, the hospital services should be broken up into specific activities, and separate f6es should be charged for each. Surgical operation time, rental for bed, work-up cost of admission, pathological test; X-ray, etc. can thus be activity units for which prices may be fixed.

Management Control Structure In Non Profit Organizations

Most of the, profit-oriented organizations are proprietary, partnership or corporate entities. In them the primary authority is derived respectively from the proprietor, partners or the shareholders. On the other hand, non-profit organizations are formed as trusts, associations, and societies or as statutory bodies. These are highly individual-based and personal ideology, becomes the main driving force in their activities. In large and statutory non-profit organizations ex-officio or nominated individuals play the top management role.

In a profit-oriented organization, the accountability at each level is specific and definite. But in a non-profit organization the accountability is generally not clear. In profit-oriented organizations, if something goes wrong, it immediately gets reflected in profit and corrective actions can be taken in time. In a non-profit organization there is no such indicator and therefore mistakes often remain undetected. There is, therefore, a greater need for a well designed control system in non-profit organizations. In profit oriented organizations financial considerations are very important. These organizations are divided into cost centers, revenue centers, profit centers and investment centers. In contrast, non-profit organizations are divided ' into mission centers and service centers. The former are held responsible for the basic tasks and the latter assist in performing these tasks.

Control Model For Non-Profit Organizations

The steps in the management control process are the same in both profit-oriented and non-profit organizations. These steps include programming, budgeting; Accounting, reporting and analysis. But the way these are handled may differ between profit-oriented and non-profit organizations.

1. Programming. It is the process of determining the Ways and means of achieving the objectives of the organization. The broad goals decided under planning are operationalised. Specific responsibilities are identified and dead-lines are set in terms of time-targets. In programming the specific objectives are translated into operational terms. It helps in finding out whether the specific objectives represent realistic challenges and can be achieved with the given resources and abilities of the organization.

Programming in a non-profit organization is relatively more difficult due to the absence of the unifying profit motive. It, is not easy to decide -on the best classification of activities, into a formal programme structure, For example, the programmes of a public school may be classified according to the students' 'age level, subject-matter, purposes for which costs were incurred (e.g., instructions, library, sports, etc.). However, programme budgeting and cost-benefit analysis are useful techniques for programming in non-profit organizations.

2. Budgeting. After deciding the operational contents of specific objective, the individual tasks and responsibilities of each programme are determined. This

exercise is called budgeting. Under it targets of output, resources required, to Achieve the output targets, the level of efficiency and input-output relationship are determined.

3. Accounting. Profit is not an important consideration in non-profit organizations. Therefore, profit and loss account is not given much attention. The accounting system in non-profit organizations generally revolves around funds; each fund is identified with a specific programme. For each fund a separate account it kept and revenues (grants and donations, etc.) received for a specific programme are deposited, in the concerned fund. Patrons and donors generally want to know the status or progress of a programme and also the expenditure. A fund accounting system is required to compile such information. Moreover, a non-profit organization operates on equal cost basis. A fund accounting system provides a timely check by ensuring that the expenditure on a programme does not exceed the total funds obtained for the programme. Thus, the fund accounting system is more in the; nature of financial control over spending. This system can be a useful toot of control along with proper programme activity based control.

4. Reporting and Analysis. The programming, budgeting and accounting elements of the control system are intended to ensure a desired level of performance. The actual performance may deviate from the desired level due to many reasons. A reporting system is required to know the extent of variation. The actual results should be periodically reported against budgeted results. The reported deviations are then analyzed to Identify, their causes. Some causes or variables may be Internal to the control, system (endogenous) and can be taken care of by the concerned managers. Other causes which are external to the system (exogenous) will have to be taken care of by the organization as a while in the long run. Once the causes of deviations are identified, appropriate corrective actions, can be taken. The basic purpose of reporting and analysis is to facilitate current action by providing the necessary feedback and self-control, the organization, may design, an appropriate reward structure in order to reinforce the control system.

Management Control of Projects.

* Meaning-of a project

* Classification of projects

* Project identification,

* Project objectives

* Planning a project

* Control system for projects

* Monitoring of projects

* Project planning and control techniques

In order to ensure effective utilization of resources for the achievement of its objectives, an organization must design and implement various projects effectively and efficiently. Any inefficiency or slackness in the implementation of projects can lead to time and cost over-runs. The quality of project work will suffer. These may ultimately result in loss of further opportunities and a decline in the profitability of projects. To guard against such dangers, every organization has to develop proper control system for its. Projects. The control system should take into account the characteristics of the project, technology and skill of the people, etc. The parameters of progress should be laid down for every project. Control system for projects should also provide the mechanisms for comparison of actual progress with the desired performance at various stages in terms of time, cost and quality. Any deviation should be properly analyzed to identify the reasons thereof so that necessary remedial actions may, be taken at the right time.

Meaning of a Project

A Project may be defined as a set of activities intended to accomplish a specified end-result. It is of sufficient importance to be of interest to the management. It presupposes commitment to tasks to be performed with well-defined objectives, schedules and budget. It is a scientifically evolved work plan devised to achieve a specific objective within a specified period of time. From the viewpoint of resource allocation, a project may-be considered as a proposal involving capital investment for the purpose of developing facilities to provide goods and services.

According to the Project Management Institute, USA, a project is "a system involving the coordination of a number of separate department entities through the organization, and which must be completed within, prescribed schedules and time, constraints In the words of Little and Mirilees, a project

refers to any scheine, for investing resources which can reasonably be analyzed and evaluated as an important unit.

Construction of a house, setting up of a factory, establishment of a school, organizing a centenary celebration, launching of, metro rail are all examples of projects.

From-the above definitions, the following characteristics of a project can be derived.

(i) Every project has, a specific objective. The objective maybe to create, expand and/or develop certain facilities.

(ii) Every project has a definite time perspective. The project objective must be accomplished according to a specified time schedule.

(iii) A project involves allocation and consumption of resources (inputs) on the one hand and generation of goods or services (outputs) the other. It may, therefore, be viewed as a system.

(iv) A project is a unique set of activities. To quote Harrison, a project is a lion-routine, non-repetitive, one-off undertaking normally with discrete One, financial and technical performance goals. A large project may be divided into a number of sub-projects, each of which may consist of several Services, Thus, a project is a combination of inter-related activities.

(v) A project involves investment of capital according to a plan. Therefore it requires, financial appraisal of costs and benefits,

(vi) Successful completion of a project requires coordination of departmental activities. A project comes to an end when the intended objective is achieved.

(vii) Projects may differ in terms of nature; size, objectives and complexity projects are found in both profit-oriented and non-profit organizations. Simplification projects, capacity expansion projects, replacement projects, maintenance projects, cost control projects, R &D Projects are examples of in industrial organizations. In Government and other ns, irrigation projects, multipurpose river valley projects, hydro-electric projects, rural development projects, building projects, rehabilitation projects are some of the common examples. There are and community projects, like malaria eradication, Adult education, drinking water project, etc.,

Project Objectives

Project objective, is, an important element in the project planning cycle. Project objectives are concerned with defining in a precise manager what the project is expected to achieve, and to provide a measure of performance for the project as a whole. Objectives are the foundations on which the entire edifice of the project design is built. The essential requirements for project objectives are

(a) specific, not general,

(b) not overly complex,

(c) measurable, tangible and verifiable,

(d) realistic-and attainable,

(e) established within resource bounds,

(f) Consistent with resources available or anticipated, and

(g) consistent with organizational plans, policies and procedures.

REVIEW QUESTIONS

1) What is M.B.O ? discuss its relevence in control system management.
2) With suitable examples, explain about various other management occasations.
3) Breifly discuss about the control system practise in multi national companies.
4) Explain, how effectively the service organization utilizing the control system practice.
5) Non- profit organization can also apply the concept of control system- Elucidate.
6) How project management organization can be taken for the control practices?.

* * *

MODEL QUESTION PAPER

Paper 3.4: MANAGEMENT CONTROL SYSTEM

Time: 3 hours

Maximum:100 Marks

SECTION –A (5 x 8 = 40)

Answer any **Five** Questions

1) State the principles of Management Control System. Explain them briefly.
2) How does the Managerial style affect the Management Control Process?
3) Discuss the main behavioural concepts for Management Control.
4) Explain the key variables that may be used for Management Control Design.
5) Discuss the problems involved in detetmining transfer price.
6) Highlight the various methods performance evaluation system in Indian context.
7) What is Management Information system? Discuss its role in Management Control.
8) What is economic risk ? What steps can a Multinational Corporation take to minimize the effect of such risks?

SECTION –B (4 x 15 = 60)

Answer any **Four** Questions

Question No.15 is Compulsory

9) Explain about the various phases of Management Control System with an suitable illustrations.
10) Discuss the role of Management Information System in the present scenario.
11) Discuss the problems involved in measuring the performance of investments centres.
12) Suggest the salient features around which control systems be designed in an advertising agency.
13) Explain, how effectively the service organization utilizing the control system practice.

14) Explain the main problems in the installation of a management information system. Suggest guidelines for making a management information system more effective.

15) Attend the following Case:

A Chartered accountancy firm is divided into three divisions-audit, taxation, and management consultancy. Suggest how control system should be designed for these three divisions.

ℵ

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Sri Balaji Offset Press, Rjpm. Copies : 500

AU / DDE / D2 / Printing / Order 7 / 2015 Date: 17-02-2015